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FORMULA FOR REGIONAL ALLOCATION OF MAINTENANCE FUNDS

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FOR
REGIONAL ALLOCATION OF
MAINTENANCE FUNDS

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PREFACE

At a meeting of the Health Commission held on 12 August 1976 it was resolved that -

> "the Division of Health Services Research in consultation with the Bureau of Finance and Physical Resources, examine the existing methods of allocation of funds to regions with a view to arriving at a formulae for distribution of funds on a per capita basis, weighted appropriately for deviation from normal conditions."

This Discussion Paper was prepared in response to the Commission's directive and it is divided into four areas:

1. Sources and Uses of public funds for health services in the State and present system of allocation of funds to regions.
2. Outline of a formula for allocation of funds for maintenance expenditure.
3. Application of the formula.
4. Some alternatives and issues for discussion.

The objectives of the Commission's request are apparent:

- to highlight and reduce disparities between different health regions of the State in terms of equitable opportunity for access to health care for people at equal risk; and
- to evolve a more objective method for equitable allocation of future health resources.

This paper should be read as a consultative document designed to elicit comment rather than a definite statement on resource allocation.

Prior to the preparation of this Discussion Paper, an advisory committee representing all bureaux of the Commission was established to provide a forum for initial discussion of the subject matter. Their assistance is gratefully recognised.

Secretariat,
Division of Health Services Research.
May, 1977.

INTRODUCTION

The purpose of this introduction is to provide an understanding of the main sources and uses of funds employed in the development and operation of public health services in New South Wales.

The flow of funds during 1975/76 is used to illustrate existing patterns of financing and the relative dimensions of the components of the fragmented system. It must be emphasised that fundamental changes in the financing of the largest segment of the system - Public hospitals - during 1975/76 makes past patterns unrealistic bases to project the future. Even the observed 1975/76 pattern will change considerably, as the innovations affected during 1975/76 make their full impact on the patterns of financing and utilisation of hospitals throughout the State. In addition, it also gives a brief sketch of the present system of allocating funds to the regions.

1. SOURCES OF FUNDS - CONSOLIDATED REVENUE

Most of the funds used by the Health Commission of N.S.W. in 1975/76 were obtained from the Consolidated Revenue Fund of the State. The single major source of funds to the State for all purposes, including health services, was the reimbursement to the State by the Federal Government of its share in Income Tax, in accordance with the States Grants Act 1973-75 - $M946.6 or 35 percent of the total receipts. State taxation provided the other major contribution - $M1,100 or 40 percent. These two sources accounted for two-thirds of the total receipts of the Consolidated Revenue Fund.

TABLE 1 STATE CONSOLIDATED REVENUE FUND RECEIPTS 1975/76

Source	$ Millions	%
Payments to the State by the Federal Government	1,122.5	41.3
State Taxation	1,100.0	40.4
Land and Mining Royalties Revenue	48.8	1.8
Receipts for Services Rendered	121.8	4.5
General Miscellaneous Receipts	326.6	12.0
Total Receipts of Consolidated Revenue	2,719.7	100.0

Some payments to the State by Federal Government that were channelled into Consolidated Revenue were related to funds specifically earmarked for health services purposes.

Receipts from the Federal Government for Community Health Services ($16.7 million) represented 90 percent of the recurrent costs of this program, the other 10 percent were met by the State from Consolidated Revenue. Federal payments for pharmaceutical prescriptions for patients in public hospitals ($10.4 million) under the National Health Act, 1953, will be discontinued, in future years, as a result of the Medibank agreement for the sharing of recurring costs of public hospitals (on a 50/50 percent basis) between the State and Federal Governments, under the Health Insurance Act, 1973. Receipts related to the treatment of Tuberculosis patients ($3 0 million) under the Tuberculosis Act, 1948, will also be drastically reduced as an outcome of the same agreement. Other Federal grants related to the running costs of the School Dental Scheme ($1.8 million), the Australian Blood Transfusion Service ($1.4 million) and Health Planning ($190,000).

TABLE 2 : CONSOLIDATED REVENUE FUNDED RECEIPTS
SUNDRY FEDERAL GRANTS FOR HEALTH SERVICES 1975/76

Program	$000's
Community Health Services	16,708
Pharmaceutical Benefits	10,415
Tuberculosis	3,030
School Dental Scheme	1,810
Australian Blood Transfusion Service	1,391
Health Planning Agencies	190
Total	33,544

Other sundry receipts of the Consolidated Revenue Fund were also directly related to the operation of health services in the State. They included registration fees paid by health service professionals to their registration boards ($603,000). Most of the proceeds from registration fees were directed into Consolidated Revenue for the maintenance of the registration boards ($489,600). The remainder was paid to the Nurses Registration Board Education and Research Account ($93,300) and the Dental Board Education and Research Fund ($20,300). Another large receipt related to the support of patients in psychiatric hospitals through the Protective Office of the Supreme Court ($2.7 million). The largest proportion of receipts under the heading of Health Commission Miscellaneous Receipts ($1.3 million) related to the Federal Government's share in the operating costs of central hospitals services under the Medibank

TABLE 3 : CONSOLIDATED REVENUE FUND RECEIPTS
SUNDRY RECEIPTS RELATED TO HEALTH SERVICES
1975/76

Sundry Receipts	$000's
Professional Board Registration Fees	489
Support of Patients in Psychiatric Hospitals	2,710
Health Commission Miscellaneous Receipts	1,321
Transfers from Patient Estates towards administrative costs	51
David Berry Estate	187
Total	4,758

agreement ($1,247,000). The balance of $73,000 included receipts for sundry services rendered.

In addition, a sum of $51,000 was allocated from patients' estates towards administration costs, in accordance with the Mental Health Act, 1958. Another $187,000 were received from the Consolidated Revenue Fund towards the maintenance of David Berry Hospital according to the David Berry Hospital Act 1906.

2. SOURCES OF FUNDS - LOAN ACCOUNT

The major source of funds for capital works and equipment for health services in the State during 1975/76 was the General Loan Account.

The State obtained most of these funds from the proceeds of borrowings under the Financial Agreement between the States and Federal Government.

TABLE 4 : STATE GENERAL LOAN ACCOUNT RECEIPTS 1975/76

Source	$ Millions	%
Proceeds of New Loans	274.1	50.3
Repayments by Departments and Authorities and Contributions by Commonwealth	134.8	24.7
Interest-Free Grants towards Expenditure of a Capital Nature	136.5	25.0
Total Receipts of General Loan Account	545.4	100.0

As in the case of the Consolidated Revenue Fund, some receipts of the General Loan Account were specifically earmarked for health services purposes Generally, they represented interest-free grants by the Federal Government for expenditure of a capital nature associated with specific programs.

TABLE 5 : GENERAL LOAN ACCOUNT SUNDRY RECEIPTS FOR HEALTH SERVICES PURPOSES 1975/76.

Program	$ 000's
Hospital Development	37,700
Community Health Facilities and Services	4,175
School Dental Services	2,811
Health Planning Agencies	10
Federal Grants	44,696

The largest proportion of these grants (84 percent) was directed to the public hospital building program. A smaller proportion (9 percent) represented three-quarters of the total expenditure on sites, buildings and equipment for community health program, the remaining one quarter was met from State sources, in accordance with the agreement between the State and the Federal Governments. A smaller amount was provided to cover the full capital costs of buildings and equipment for the training schools for dental nurses ($2.3 million) and the school dental clinics ($546,000). A small fraction of the total (.02 percent) was received for equipment for research and planning purposes.

3. SOURCES OF FUNDS - HOSPITAL FUND

Other funds for health services in the State are channelled through Special Deposits Accounts. Some of these accounts hold grants and other receipts in trust pending their transfer to operating accounts such as the Consolidated Revenue Fund. Others are used as working accounts to which funds are transferred from assorted sources to cover charges or cash transfers to other entities throughout the system.

The Hospital Fund is a special deposits account established to operate most of the funds used in the running of public and state hospitals, as well as the community health program.

In addition to contributions made from the Consolidated Revenue Fund (54 percent) and transfers from the General Loan Account (12 percent), the Hospital Fund received funds from a variety of sources. The largest source of finance from State funds came from the proceeds of taxation of poker machines (11 percent), in accordance with the Gaming and Betting Act, 1912.

Payments by the Federal Government made a major contribution to the Hospital Fund (18 percent of the total). Hospital Benefits for patients in State hospitals under the National Health Act, amounted to $4.7 million in 1975/76. This source of funds will not be relevant in future years because of the repeal of the relevant section of the National Health Act in 1976. Payments under the Medibank agreement on hospital services made up the largest proportion of Federal Funds channelled into the Hospital Fund account ($128 million). They included payments for patients in the recognised part of Lidcombe Hospital and the Randwick Chest Hospital (recognised by the Federal Government for the purposes of the Medibank Agreement). This source of funds for the Hospital Fund account should become larger in future years, because of changes that will reduce direct payments to hospitals by Medibank. Payments to the Hospital Fund from Medibank reflected the difference between 50 percent of net operating costs of recognised hospitals and the payments made directly to hospitals ($16 per occupied bed/day and $2 per day paid through health insurance funds). The payments related only to the period of the agreement from October 1975 until April 1976, when payments by the Federal Government were suspended pending clarification of the legal validity of the Medibank Agreement. In June, after the passage of the States Grants (Hospital Operating Costs) Act, 1976, the Federal Government made further payments under the Agreement to the State. However, these payments were not transferred to the Hospital Fund until after the end of the financial year.

TABLE 6 : HOSPITAL FUND RECEIPTS 1975/76

Source		$ Millions	%
Consolidated Revenue Fund		393.8	54.3
General Loan Account		86.5	11.9
Poker Machines Taxation		82.4	11.4
Medibank			
- General	127.2		
- Lidcombe & Randwick Hospital	.9		
Hospital Benefits			
- State & Psychiatric Hospital	4.7	132.8	18.3
State and Psychiatric Hospitals' Patient Fees		9.5	1.3
Refunds by Superannuation Boards of Contributions		4.6	.6
Other Miscellaneous Receipts		1.5	.2
Repayment by Public Hospitals of Surplus Funds		14.7	2.0
Hospital Fund Total Receipts		725.8	100.0

Fees received from patients in Psychiatric and other State hospitals are paid directly into the Hospital Fund, but these fees constitute only 1 percent ($9.5 million) of the total receipts of the Hospital Fund. Other payments into the Hospital Fund relate to refunds by superannuation boards of contributions ($4.6 million) made by employers and employees in regard to people who left hospital services; as well as payments by staff in Psychiatric and other State hospitals for accommodation and meals received.

During 1975/76 public hospitals were given advancements to help them during the Medibank transition period, surplus funds were paid back into the Hospital Fund ($14.7 million).

TABLE 7 : SPECIAL ACCOUNT SUNDRY FUNDS FROM FEDERAL GOVERNMENT SOURCES 1975/76

Program	$ 000 's
Aboriginal Advancement	1,036.1
Drug Education	200.2
Research	23.6
Smoking Education	6.3
Total	1,266.2

4. SOURCE OF FUNDS - OTHER SPECIAL ACCOUNTS

As stated earlier, re-issues from Special Accounts provided other funds for specific programs supported in the main by the Federal Government, in addition to the funds already mentioned.

The largest issue of funds of this nature came from Federal grants for Aboriginal advancement to cover free nursing and dental treatment for aborigines ($1,036,000).

Federal grants to cover expenditure on drug education constituted another significant contribution ($200,000). Smaller grants related to research supported by the National Health and Medical Research Council ($24,000) and the final contribution by the Federal Government to the Smoking Education Program ($6,000).

TABLE 8 : STATE CONSOLIDATED REVENUE FUND PAYMENTS ON ACCOUNT OF DEPARTMENTS 1975/76.

Department	$ Millions	%
Minister for Education	798.3	31.6
Treasurer	516.3	20.4
Minister for Health	433.7	17.1
Minister for Police and Services	197.4	7.8
Special Appropriations (Excl. Debt Charges)	103.9	4.1
Minister for Public Works and Ports	97.8	3.9
Premier	87.7	3.5
Minister for Lands and Forests	50.2	2.0
Minister for Agriculture	47.5	1.9
Minister for Youth, Ethnic & Community Affairs	43.5	1.7
Minister for Local Govt. & Tourism	41.3	1.6
Attorney-General & Minister for Justice	37.8	1.5
Minister for Culture, Sport & Recreation	14.6	.6
Minister for Labour & Industry, Consumer and Federal Affairs	11.4	.5
Minister for Mines and Energy	10.5	.4
Minister for Revenue & Assist. Treasurer	8.9	.4
Minister for Decentralisation	8.1	.3
Minister for Planning and Environment	6.0	.2
Minister for Transport & Highways	4.6	.2
Legislature	3.2	.1
Minister for Conservation	1.6	.1
Minister for Housing &Co-op. Societies	1.4	.1
Supplement to Schedules to the Constitution Act	.1	-
Consolidated Revenue Fund Payments (Excl. S.L.L.)	2,525.8	100.0

TABLE 9 : CONSOLIDATED REVENUE FUND PAYMENTS HEALTH SERVICES 1975/76.

Purpose		$ 000's	%
Administration and Sundry Services		33,902.4	7.8
Contributions to Hospital Fund		393,819.0	90.9
Subsidy re : Medical Practitioners in Country Areas		62.6	-
Grants -			
N.S.W. Ambulance Board	3,008.4		
Anti-Tuberculosis Ass. of NSW	824.5		
N.S.W. Institute of Psychiatry	228.0		
N.S.W. State Cancer Council	190.0		
Royal Flying Doctor	100.0		
Consultative Council for the Physically Handicapped	61.0		
Royal Far-West Children	30.0		
National Heart Foundation	25.0		
Murray Valley Encephalitis Treatment Program	24.3		
Multiple Sclerosis Soc. of NSW	20.0		
Karitane Mothercraft Soc.	15.0		
Bureau of Medical Inspection, Broken Hill	13.0		
Royal Aust. Coll. of General Practitioners	12.5		
Dental Health Ed. & Res. Found	12.0		
Royal College of Pathologists of Australia	10.0		
Campaign for Reduction of Maternal and Infant Mortality	8.9		
National Neurological Appeal	5.0		
Int. Ass. of Oral Surgeons	5.0		
	4,592.6		
Grants for the Promotion of Research	455.2		
Miscellaneous Grants	78.8		
		5,126.6	1.2
		432,910.6	
David Berry Hospital		217.0	.1
Total Consolidated Revenue Payments		433,127.6	100.0

5. USE OF FUNDS - CONSOLIDATED REVENUE

The major use of funds from the Consolidated Revenue Fund in 1975/76 for health services was the appropriation of the maintenance of public, psychiatric, other state hospitals and the community health program : $393.8 millions or 91 percent of the total.

The administration of bureaux and regions, but especially the provision of services in baby and child health centres and the operation of central service divisions such as the Institute of Clinical Pathology and Medical Research, Government Analyst, Occupational Health, Forensic Medicine, Medical Examinations and Immunization Centre, the Oliver Latham Laboratory accounted for the outlay of of $33.9 million (7.8 percent of the total). Grants to a variety of health related bodies absorbed $5.1 million (1.2 percent) during that year. By far the largest grant was given to the N.S.W. Ambulance Board ($3 million), which has since then been amalgamated with the Health Commission. Other substantial grants were provided to the Anti-Tuberculosis Association of N.S.W., N.S.W. Institute of Psychiatry, N.S.W. Cancer Council and the Royal Flying Doctor.

In addition, $572,400 were spent in 1975/76 in the administration of Miscellaneous Boards concerned with the registration of health professionals. The total expenditure of $433.7 million represents 17 percent of payments made out of the Consolidated Revenue Fund on account of Government Departments' payments (but excluding payments to the Federal Government on account of the State's loan liability).

TABLE 10 : STATE GENERAL LOAN ACCOUNT
EXPENDITURE FOR WORKS AND SERVICES 1975/76

Program	$ Millions	%
Schools, Tech. Colleges & Universities	180.1	33.0
Transport	96.3	17.7
HOSPITALS & OTHER HEALTH SERVICES	88.2	16.2
Water, Sewerage and Drainage Works	46.4	8.5
Conservation of Water, Soil & Forests	45.4	8.3
Administrative & Miscellaneous Services	30.7	5.6
Electricity	20.6	3.8
Ports, Harbours & Rivers	11.8	2.2
Housing (Excl. Federal/State Agreement)	8.6	1.6
Land Settlement	5.1	.9
Decentralisation & Development	5.0	.9
Local Government Works	4.7	.9
Rural & Argicult. Inst. & Services	1.1	.2
Trading & Service Undertakings	1.0	.2
Total Expenditure for Works & Services	545.0	100.0

6. USE OF FUNDS - LOAN ACCOUNT

As in the case of the Consolidated Revenue Fund, most of the funds used for the building and equipment of hospitals and other health services from the General Loan Account were transferred to the Hospital Fund ($86.5 million). In addition, a smaller amount was spent in 1975/76 under the Public Works Department vote. The total payments transfers for health service purposes represented 16 percent of the total payments for work and services made from the General Loan Account during 1975/76.

7. USE OF FUNDS - HOSPITAL FUND

The Hospital Fund provides the largest source of funds for health services in the State. In 1975/76, funds from Federal and State government sources provided $697 million for both running and capital costs for hospitals and community health services through the Hospital Fund.

TABLE 11 : HOSPITAL FUND PAYMENTS 1975/76

Purpose	$ Millions	%
Operating Costs -		
Subsidies for Public Hospitals	478.7	68.7
Operating Costs of Psychiatric and other State Hospitals	97.5	14.0
Operating Costs of Community Health Services	18.9	2.7
Total Operating Expenditure	595.1	85.4
Capital Costs -		
Public Hospitals	90.8	13.0
Community Health Services	5.4	.8
Other	5.3	.8
Total Capital Expenditure	101.5	14.6
Total Payments Hospital Fund	696.6	100.0

The largest proportion of the funds were used to subsidise the operating costs of Public Hospitals in the State ($479 million or 69 percent). Smaller outlays were made to cover the running costs of State hospitals ($98 million or 14 percent) and Community Health Services ($19 million or 3 percent). The capital costs for sites, buildings and equipment of health services, but especially public hospitals, absorbed the remaining expenditure ($102 million or 14 percent). The outlay on capital expenditure includes $1.5 million expenditure on capital equipment for the Ambulance Services of the State.

8. FLOW OF GOVERNMENT FUNDS

The preceding review of sources and uses of funds reflects the complexity and difficulties encountered in the administration of finances for the operation and development of health services in the public sector of this State. In order to provide an easier understanding of the flow of funds, an attempt has been made to consolidate the flows in the different segments of the fragmented system. It is likely that in spite of considerable consultation and care in the compilation of the figures some omissions and double-counts have persisted. Consequently, the following analysis should be viewed more as an indication of the direction and dimension of the flow of funds rather than a precise measurement.

As foreshadowed earlier, by far the largest contribution to funds employed in the operation of public health services in the State during 1975/76 came from State funds (70 percent of the total). Federal grants contributed slightly more than a quarter (27 percent of the total), mainly under the Medibank agreement on the share of the operating costs of public hospitals between the Federal and State governments. Other receipts, including fees charged to patients in Psychiatric and other State hospitals, made up only a small contribution towards the total funds employed (3 percent).

Subsidies towards the operating costs of Public Hospitals overshadowed any other use of funds employed during 1975/76 by absorbing three quarters of the total. The operating costs of State hospitals absorbed another large proportion of the total (16 percent). Thus, contributions to the running of Public and State hospital services used approximately nine-tenths of the total funds employed for recurrent expenditure.

TABLE 12 : FLOW OF FUNDS IN PUBLIC SECTOR FOR THE OPERATION OF N.S.W. HEALTH SERVICES 1975/76.

Sources	$ Millions	%
Federal Grants-		
Medibank & Other Hospital Subsidies	143.2	23.1
Community Health Services	16.7	2.7
Anti-Tuberculosis Services	3.0	.5
School Dental Scheme	1.8	.3
Aust. Blood Transfusion Service	1.4	.2
Aboriginal Advancement	1.0	.2
Drug Education	.2	-
Health Planning	.2	-
Total Federal Grants	167.5	27.0
Fees -		
Patients in Psychiatric & Other State Hospitals	12.2	1.9
Professional Boards Registration Fees	.5	.1
Total Fees	12.7	2.0
Miscellaneous Receipts -		
David Berry Estate	.2	-
Refunds from Superannuation Boards	4.6	.7
Other Receipts	2.8	.4
Total Miscellaneous Receipts	7.6	1.2
State Taxation and Other Sources -		
Poker Machine Taxation	82.4	13.3
Consolidated Revenue & Other Sources	350.6	56.5
Total State Taxation and Other Sources	433.0	69.8
Total Funds Employed	620.8	100.0
Uses:		
Health Commission -		
Administration of Health Commission and Costs of Sundry Services	33.9	5.5
Community Health Services	18.9	3.0
Aboriginal Health Services	1.0	.2
Drug Education	.2	-
Total Health Commission	54.0	8.7
Hospitals -		
Costs of Psychiatric & Other State Hospitals (Including David Berry)	97.7	15.7
Net Subsidy to Public Hospitals	464.0	74.8
Total Hospitals	561.7	90.5
Grants to Sundry Organisations	5.1	.8
Total Funds Used	620.8	100.0

Capital expenditure on Public and State hospitals absorbed once again approximately nine-tenths of the total investment in buildings and equipment. However, Federal grants formed a larger proportion of the total funds employed (44 percent) than in the case of operating expenditure. The State still continued to provide the largest proportion (56 percent) of the funds employed.

TABLE 13 : FLOW OF FUNDS IN PUBLIC SECTIOR FOR CAPITAL EXPENDITURE IN N.S.W. HEALTH SERVICES 1975/76.

Sources	$ Millions	%
Federal Grants -		
Hospital Development	37.7	37.2
Community Health Services	4.2	4.1
School Dental Scheme	2.8	2.8
Total Federal Grants	44.7	44.1
State Sources -		
General Loan Account	56.7	55.9
Total Funds Employed	101.4	100.0
Uses:		
Public and State Hospitals	90.5	89.2
Community Health Services	5.4	5.3
School Dental Scheme	2.8	2.8
Other Services*	2.7	2.7
Total Funds Used	101.4	100.0

* Excludes funds used for capital equipment of the Ambulance Service.

9. PUBLIC HOSPITALS

It is apparent that Public hospitals are the main users of the State's government funds employed in the development and operation of health services in the State. However, in addition to State public funds, public hospitals use funds from other sources. At the time of writing, there were no final figures for 1975/76, because of the difficulties arising from the sharing-cost agreement between the Federal and State governments. An indication of proportions can be illustrated through the use of estimate figures for the 9 month period from October 1975 to June 1976.

TABLE 14 : FLOW OF FUNDS PUBLIC HOSPITALS IN N.S.W. OCTOBER 1975 - JUNE 1976 (Preliminary Estimates).

Sources	$ Millions	%
Subsidies from Hospital Fund	378.4	75.4
Medibank & Other Federal Subsidies	62.0	12.4
Sundry Federal & Other Grants	12.9	2.5
Subsidies and Grants	453.3	90.3
Patient Fees	43.2	8.6
Sundry Receipts	5.4	1.1
Total Funds Received	501.9	100.0
Uses:		
Salaries and Wages	368.8	76.4
Superannuation (net of employees' contrib.)	17.1	3.5
Payments to Visiting Medical Officers	6.8	1.4
Personnel Costs	392.7	81.3
Drugs, Medical & Surgical Supplies	23.7	4.9
Food Supplies	12.8	2.7
Domestic Charges	12.6	2.6
Special Service Departments	11.8	2.4
Replacements, Additions, Repairs & Maintenance	11.7	2.4
Administrative Expenses	11.5	2.4
Fuel, Light & Power	6.2	1.3
Total Expenditure	483.0	100.0
Repayable Surplus	18.9	
Total Funds Used	501.9	

The estimates for the 9 month period show that in addition to Federal and State government subsidies and grants (90 percent of total funds received), patient fees contributed approximately 9 percent of the funds received by public hospitals, and other sundry receipts (including charges for meals and accommodation of staff) one percent of the total. As expected, approximately 81 percent of the total expenditure related to personnel costs, and the remainder to other expenditure on supplies of goods and services. It might be also mentioned that the above exclude most of the costs for teaching medical students. These costs are, in the main, incurred by the relevant universities. In addition, a grant is made each year by the universities directly to the relevant hospitals for expenditure incurred by teaching hospitals in the teaching of medical students. These grants are made on calendar year basis. Teaching hospitals received $672,000 for this purpose during 1975/76. They have been included under sundry receipts of public hospitals. Medical research tends to be financed through specific grants to universities, institutions and individuals and expenditure tends to be excluded from public hospital expenditure.

10. THE PRESENT ALLOCATION PROCESS

The present method of allocating funds to the regions follows a fragmented approach, which considers individually funds for the Capital Works program, Public hospitals, State hospitals, Regional administration and services and the Community Health program, which is cost-shared with the Federal Government.

The allocation of Capital Works funds to the regions rations available loan (and more recently Federal) funds among the regions, on the basis of a 15 year plan, which reflects the ordered set of State priorities. These priorities reflect the results of consultation with hospitals, regional administrations and the government.

The allocation of funds for State and Public hospitals to the regions is based on the traditional item per item annual estimates for maintenance expenditure prepared by the hospitals. These estimates are reviewed through a process of enquiring and consultation at Regional, Commission and State Treasury levels before submission to Cabinet and incorporation into the State Budget. In the case of Public hospitals consultation and review is also undertaken by a joint committee of State and Federal health authorities, on account of the cost-sharing agreement between the State and Federal governments.

Funds for Regional administration and health services, which are fully funded by the State, are allocated on the basis of the conventional item for item estimates. These estimates are reviewed by the Commission and the Treasury prior to submission to Cabinet and incorporation into the State's Budget. The Public Service Board plays a major role in this allocation of funds, since it reviews staff levels and the Board's approval is necessary for the creation of any new positions.

The allocation of funds to regions for the Community Health program, which is financed largely by the Federal Government, rations the amount of available funds among the regions, which are then allocated to regional priorities. The order of priority and the worth of individual services under this program are subject to review at Regional and Commission level prior to review by a joint State and Federal Committee.

Funds of the building of facilities for the School Dental Scheme, which also largely financed by the Federal Government, are allocated on the basis of priorities developed by the regions and reviewed by State and Federal authorities. The available funds are then rationed in accordance with set priorities among the regions. The allocation of funds to the regions for operating costs is based on the location and operation of services, as a result of the building program. Other programs including the Minor Works program are handled in a similar ways to those described earlier.

It is widely accepted that the current method of allocation of funds tends to perpetuate the decisions made in relation to past building programs. This appears to provide no way of reviewing past decisions and to allocate funds for operating costs based on past rather than present needs. This incremental approach could be described as an allocation system based on the "same-as-last-year and a bit more" for inflation, new units and improvement of staff ratios. Consequently, it tends to perpetuate the status quo, especially in the area which absorb 90 percent of the Public funds used in the operation of health services in the State, namely Public and State hospitals.

The formula outlined in the following sections is an attempt at trying to provide a means of allocating funds to the regions for maintenance expenditure, in a way that provides a chance of changing the status quo created by the location of existing services and facilities in given regions, and that takes into consideration population movements and changing needs.

The tentative application of the formula, with all its statistical and data short-comings, has provided an opportunity to highlight some of the features of the present system. It also raises issues that have been the subject of attention in the past, as well as some new ones that need to be considered if a more dynamic and appropriate system of allocation of funds is to be evolved, regardless of the acceptance or otherwise of the outlined formula.

SECTION 1 : DESCRIPTION OF REGIONAL ALLOCATION FORMULA.

This section describes a formula to allocate funds for maintenance expenditure among the health regions of the State, on a per capita basis weighted for utilisation of services and need factors. The first part (A) describes the allocation of funds to the regions for Schedule 2 and 3 hospitals, Schedule 5 hospitals, Community Health and Administration on a per capita basis.

- weighted for variations in the utilisation of services arising from the age/sex structures of the population of the regions,
- adjusted for inter-regional patient flows,
- adjusted for interstate flows of patients into the State,
- adjusted for cost differences in super-regional services,
- adjusted for teaching, research and state-wide services, (e.g. United Dental Hospital).

The second part (B) describes the allocation of funds for maintenance expenditure to the regions on a per capita basis.

- weighted for variations in age/sex specific death rates among the regions with added weighting to infant deaths.

As in part A adjustments are made for inter-regional and interstate patient flows, super-regional services, teaching and research and state-wide services.

The allocation of funds as for parts A and B are subsequently combined.

1.1 The Formula

A flow chart has been prepared to show in diagramatic form the steps involved in a formula for allocating funds among health regions in the State (page28). Essentially the formula is determined by the population size of the regions modified for differences in the utilisation of services by age/sex groups, inter-regional flows of patients, super-regional services teaching and research and the health needs of the regions.

The formula has been developed for the allocation of maintenance expenditure. However, should it be decided, a formula for the allocation of capital expenditure could also be developed.

The flexibility of the formula should be emphasised:

1. it can be used to generate the total amount of funds to be allocated for maintenance expenditure to the regions, either in total or for each area of expenditure; or
2. it can be used to allocate among regions a predetermined amount of funds either in total or for each area of expenditure;
3. variations in the amount of funds available for distribution can easily be accommodated;
4. the formula can apportion funds between areas of expenditure in the same proportion as in the previous year, or it can be used to re-direct funds, e.g. from general hospital services to community health care;
5. the formula can use either gross maintenance expenditure or net subsidies to hospitals;
6. Cost-sharing arrangements between the State and Federal governments would not affect the application of the formula.

Whilst emphasising the formula's flexibility, the difficulties in introducing a radically new system of funds allocation should not be overlooked. The introduction of the formula would require the commitment of The Commission, The Treasury, The Public Service Board and the support of the political system, if it is to achieve its aim of allocating funds in an equitable and efficient way among the health regions of the State.

1.2 Part A.

Boxes 1 to 22 of the flow chart in A describe steps for the allocation of funds on a per capita basis taking into account different utilisation for variations in the age and sex structure of each region's population.

Funds are distributed among the following four areas:

1. General Hospitals (Schedules 2 and 3)
2. Psyhciatric and other State Hospitals (Schedule 5)
3. Community Health (including baby health centres and other services)
4. Administration

In each of the first three of these areas the steps involved in the allocation are:

1. Determination of State average utilisation factors for five year age and sex groupings which are then used as population weightings.
2. Multiplication of the State per capita average utilisation factor by each region's age and sex groupings to determine a notional utilisation for the specific age/sex groups.
3. Summation of the age/sex groups' utilisation to determine a total notional utilisation for each region.
4. Allocation of funds to each region in the same ratio as their proportion of notional utilisation to the estimated total for all regions.

Each of these three areas (general hospitals, psychiatric hospitals and community health) are examined in more detail in following paragraphs.

1.3 General Hospitals.

For general hospitals the most appropriate measure of utilisation for the age/sex groupings is thought to be patient days.

An implicit assumption concerning the use of patient days is that one day's hospitalisation for the age group 0-4 costs the same as one day's hospitalisation in age group 70-74. It is probable, however,

that inpatients' daily costs and length of stay are inversely proportional to each other (i.e. as length of stay increases bed costs decrease) due to the fact that most procedures are carried out during the early period of hospitalisation. Since it is known that as age increases length of stay increases, it may be appropriate to combine both patient days and admissions to determine a more equitable weighting to age/sex divisions for general hospital care.

1.4 Psychiatric Hospitals.

Owing to the long term nature of much psychiatric care the age of the population at separation is not appropriate to reflect the likelihood of admission to psychiatric institutions by any one age/sex group.

The best available reflection of the stage at which the population is at risk for institutionalised psychiatric care is the age upon admission to institutions. Thus assuming length of stay does not vary markedly among different age/sex admissions, the number of admissions by age at admission is appropriate. If length of stay does vary substantially it may be necessary to combine admissions and length of stay for a weigthing, or to use patient days by sex and age group as in the case of general hospitals.

1.5 Community Health Services.

Determining the relative importance of demand for community health services for age/sex groups is perhaps best measured in terms of new registrations. Registrations could relate either to a registration for one person regardless of complaint or a registration for each separate problem regardless of whether an individual has presented previously.

1.6 Fund Transferences between Regions.

Boxes 23 and 24 in the flow chart relate to adjustments to the regional per capita age/sex weighted allocation to take account of persons domiciled in one region who obtain general hospital or psychiatric care in an institution located in another region. The cost of treating that person, net of any income received should be reimbursed to the region providing the service from the region in which the person normally resides. The State total net effect of cash transferences between regions therefore is nil although account should also be taken of persons who are either domiciled outside N.S.W. and receive care in the State or are domiciled in N.S.W. and receive care in other States.

In order to take account of super-specialty services cash transferences are determined at the average cost per occupied bed day of the region to which the patient is going. It is not thought necessary to determine inter-regional cash transferences for persons utilising community health services.

Taking account of inter-regional flows in the formula may conceal existing inequities in the distribution of health services. If a region has a large net outflow of persons to another region to receive health care, this may by itself be indicative of maldistribution of resources. On the other hand, it may indicate the location of a large institution just across the regional boundary.

1.7 Teaching and Research.

A substantial portion of teaching and research activities, conducted in the State's hospitals, is funded by the Commission through its subsidy to hospitals. Box 24 in the chart shows an allowance for this purpose. It is postulated that the cost of teaching and research should be borne by the regions in proportion to their population. Thus, cash reimbursements would tend to flow into the metropolitan regions from country regions.

Teaching relating to clinical experience for medical students is predominantly centralised in three metropolitan regions, Inner, Northern and Southern. While such items as salaries of Resident Medical Officers, Interns and Registrars are met by the Health Commission a significant portion of teaching expenditure is met by the University to which the hospital is affiliated. Nursing schools unlike medical education, tend to be more evenly distributed throughout the State and their cost is fully absorbed by the hospitals in which they are located.

Research activities conducted in hospitals appear to be largely funded through sources such as National Health and Medical Research Council, Hospital and Health Services Commission and University grants - where they are funded through the hospital maintenance vote, expenditure for such research should be borne equally throughout the State.

1.8 Administration.

The fourth area in Section A which should be treated distinct from the previous three (General Hospitals, Psychiatric Hospitals and Community Health Services) is Administration. Administration costs for each region, it is contended, have a fixed and variable component. The fixed component relates to the basic manpower requirements necessary to establish a regional office (e.g. Regional Director, Deputy Director, Administrative Officer, etc.). Thus in the allocation of funds each region should receive the same amounts to cover this fixed component. The most equitable procedure to allocate the remaining variable component is on a per capita basis (i.e. if Region A has 10% of the State's population, it should receive 10% of the variable costs) although cognisance could also be taken of a range of other factors such as a geographic size of region, number of institutions, etc. The quantification of these factors is, however, difficult.

After determing the appropriate allocation for each region for the four areas discussed, these are then summated as indicated in Box 26 - the total amount equalling $y which is the amount available for distribution.

1.9 Part B

Unlike Part A, which allocates funds on a per capita basis weighted for age variations in utilisation, Part B incorporates the concept of need.

Although there are a variety of factors which could be included in an Index of Need (See Section 3, of this working paper), death is considered to be the ultimate measure. Infant mortality is given special emphasis.

The number of deaths in a region are age/sex standardised so that variations in age/sex structures between regions are accounted for (Box 27). The ratio of actual deaths to the age/sex standardised expected number of deaths is multiplied by the population in each region to determine the relationship of one region to another (Box 28). Thus if a region (pop. 500,000) has 6,000 deaths in a year while the age/sex standardised expected deaths are 5,000 then the region is considered to be relatively disadvantaged and its population is weighted upwards.

$$\text{i.e.} \quad \frac{6000}{5000} \times 500{,}000 = 600{,}000$$

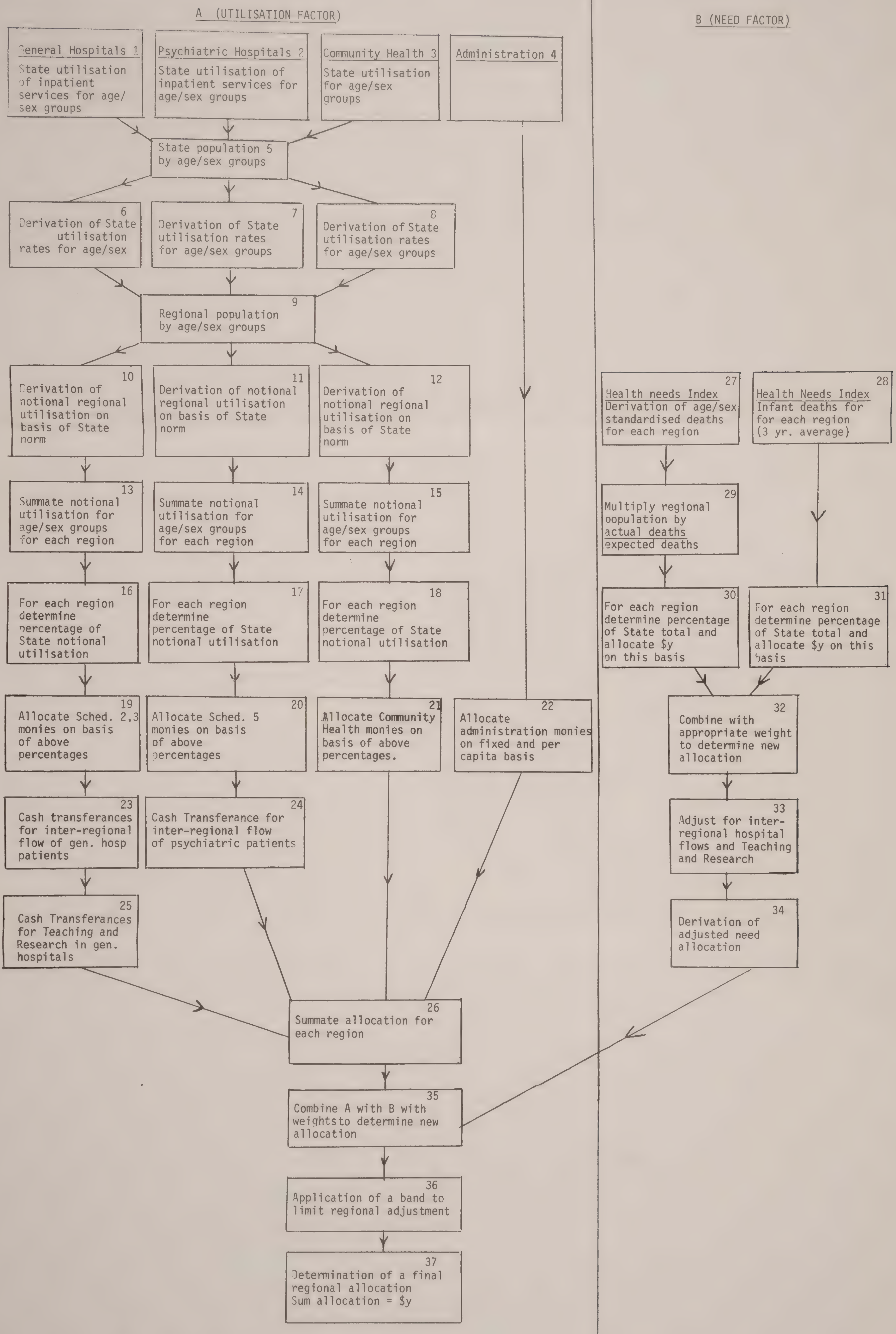
The absolute number of infants deaths (average over three years to smooth any substantial annual variations) is itself used as a weight in the allocation of funds. Allocations based on infant deaths and age/sex standardised deaths are combined (Box 32). This allocation is then adjusted to take account of inter-regional patient flows (Box 33) and teaching and research (Box 23 & 24 & 25) and a revised allocation, on the basis of need is calculated (Box 34).

1.10 Combination of Parts A and B

The allocations calculated in accordance with Part A and Part B are combined given some appropriate weighting to both the utilisation and need allocation (Box 35). Through this method of resource allocation regions could receive substantially more or less than they would have received by the existing allocation method. Rather than re-allocate these amounts in one year it is proposed that a percentage band be applied so that regions would be limited in the increase/decrease they would experience in any given year. This would have the effect of enabling any re-allocations to be gradual over a period of years (Box 36).

REGIONAL ALLOCATION FORMULA

FLOW CHART.


A (UTILISATION FACTOR)
B (NEED FACTOR)
General Hospitals 1
State utilisation of inpatient services for age/sex groups
Psychiatric Hospitals 2
State utilisation of inpatient services for age/sex groups
Community Health 3
State utilisation for age/sex groups
Administration 4
State population 5 by age/sex groups
6 Derivation of State utilisation rates for age/sex
7 Derivation of State utilisation rates for age/sex groups
8 Derivation of State utilisation rates for age/sex groups
9 Regional population by age/sex groups
10 Derivation of notional regional utilisation on basis of State norm
11 Derivation of notional regional utilisation on basis of State norm
12 Derivation of notional regional utilisation on basis of State norm
13 Summate notional utilisation for age/sex groups for each region
14 Summate notional utilisation for age/sex groups for each region
15 Summate notional utilisation for age/sex groups for each region
16 For each region determine percentage of State notional utilisation
17 For each region determine percentage of State notional utilisation
18 For each region determine percentage of State notional utilisation
19 Allocate Sched. 2,3 monies on basis of above percentages
20 Allocate Sched. 5 monies on basis of above percentages
21 Allocate Community Health monies on basis of above percentages.
22 Allocate administration monies on fixed and per capita basis
23 Cash transferances for inter-regional flow of gen. hosp patients
24 Cash Transferance for inter-regional flow of psychiatric patients
25 Cash Transferances for Teaching and Research in gen. hospitals
26 Summate allocation for each region
27 Health needs Index
Derivation of age/sex standardised deaths for each region
28 Health Needs Index
Infant deaths for for each region (3 yr. average)
29 Multiply regional population by actual deaths / expected deaths
30 For each region determine percentage of State total and allocate $y on this basis
31 For each region determine percentage of State total and allocate $y on this basis
32 Combine with appropriate weight to determine new allocation
33 Adjust for inter-regional hospital flows and Teaching and Research
34 Derivation of adjusted need allocation
35 Combine A with B with weights to determine new allocation
36 Application of a band to limit regional adjustment
37 Determination of a final regional allocation
Sum allocation = $y

NOTES: (1) Allocation of maintenance expenditure only.

(2) $y = amount available for allocation.

SECTION 2 : APPLICATION OF THE SELECTED FORMULA

This section tests the practicality of the formula described in Section 1. The more important Tables have been incorporated in the text whilst others are included in the Appendix. These latter group of Tables are prefixed by the letter A.

2.1 Purpose

The aim of this section of the Discussion Paper is to attempt to apply the formula which has been outlined earlier. The application is not as statistically accurate as it could be, given more time and improved data inputs (e.g. 1976 Census data, comprehensive hospital morbidity and community health data).

The purpose of applying the formula is to

1. determine whether it is feasible;
2. provide guidance as to the formula's effect on current resource allocation;
3. determine the sensitivities of each of the inputs; and
4. highlight problems in data requirements.

Population estimates for each region used throughout this Section were obtained from estimates of the Australian Bureau of Statistics (A.B.S.) However, preliminary results of the 1976 Census have recently become available (Table A.1) and the A.B.S. estimates when compared to the 1976 preliminary Census results reveals some discrepancies. The regions for which the estimates were greater than the Census, were the following:

Inner Metropolitan,
Northern Metropolitan,
Southern Metropolitan.

For all other regions A.B.S. estimates were less than the 1976 Census results. However, any discrepancy introduced by these population differences would not be major.

Monetary data used throughout this Section relate to the total maintenance expenditure for 1975/76 of each region for Administration, Schedule 2 and 3 hospitals, Schedule 5 hospitals and Community Health (Table A.2).

2.2 General Hospitals (Schedule 2 and 3) - Per capita Utilisation Weighted Allocation

The Hospital Morbidity Collection is the most appropriate source to derive the weighting of population for variations in utilisation of Schedule 2 and 3 hospitals by different age and sex groups.

Information available from this collection is currently restricted to a full hospital coverage of 1974/75 data from

Riverina
Murray
Hunter
Inner Metropolitan and
Northern Metropolitan

health regions with only partial coverage of some of the remaining regions. The number of hospital patient days by sex and selected age groupings at separation was extracted from these data (Table A.3). Rather than extract data for all five-year age groups, for expediency in calculation, larger age groups were used. These main age groups for Schedule 2 and 3 hospitals are 0-4, 5-14, 15-44, 45-64 and 65 and over. High utilisation rates are associated with the aged, the 0-4 group and females in the age group 15-44.

TABLE 2.1 : AVERAGE NUMBER PATIENT DAYS PER ANNUM

Age	Males	Females	TOTAL
0-4	1.46	1.20	1.33
5-14	0.43	0.34	0.38
15-44	0.55	1.56	1.04
45-64	1.71	1.60	1.65
65+	6.87	6.40	6.59
All Ages	1.30	1.83	1.57

It is assumed that the distribution of patient days in the age/sex groups for the hospitals in the morbidity collection is a fair representation of the State as a whole. Total patient days in the same period as published in "Statistical and Financial Data - Public Hospitals" 1974-75 was around 7.5 million and the morbidity data was expanded to provide an estimated age/sex breakdown of patient days for the whole State (Table A.4).

Using population estimates for the State for the selected age/sex groups (Table A.5) the average number of hospital patient days for each age and sex group was derived. Table 2.1 shows the relatively higher utilisation rates of hospital services by the very young and the elderly. Males over 65 years of age spend an average of 6.87 days per year in hospital compared to .34 days per year for females 5-14. Note also the high utilisation rate for women in their child-bearing years.

The utilisation rates for specific age/sex groups in Table 2.1 were applied to the population of each region. As mentioned in the previous section, the use of patient days as weights in the allocation of funds assumes that the cost of a hospital patient day is the same for all age groups. It also assumes that patient day costs do not vary with length of stay, whereas in all probability short length of stay patients have a greater day cost than longer term patients. If a combined weighting of separations and patient days were used the weightings would be substantially altered as there is not the same wide discrepancy in the number of separations between the elderly and young as there is in patient days (because the elderly stay in hospital longer). This is demonstrated in Table A.6. However, in the absence of data on the marginal costs of additional hospital stay, a composite weighting was not developed.

An estimate of the 1975 population for each of the regions by the relevant age/sex groupings (Table A.7) was derived by the application of the 1971 Census age/sex structures to a 1975 estimate of the population in each region (Table A.8). The population of each region for each age/sex cell was then multiplied by the State average number of patient days for each cell as in Table 2.1 (Table A.9). The total number of patient days of 7,308,000 is a notional total and hence does not equate with actual patient days of 7,501,000.

The total notional number of patient days for each region reflects the per capita utilidation adjusted relationship of one region to another. The number itself is of no significance. Column 5 of Table 2.2 shows the re-allocation of total 1975/76 Schedule 2 and 3 expenditure as per each region's percentage of total notional patient days. This amount is compared to actual 1975/76 regional allocations in Column 4 - the fact that no adjustment has yet been made for inter-regional flows and teaching and research explains the substantial differences.

TABLE 2.2 : RE-ALLOCATION OF 1975/76 SCHEDULE 2 AND 3 FUNDS ON PER CAPITA BASIS, WEIGHTED FOR AGE/SEX UTILISATION RATES

(1) Region	(2) Notional Patient Days 000's	(3) % Patient Days to Total	(4) 75/76 Actual Sched. 2 & 3 Allocation $'000	(5) Re-adjusted Allocation as per Col.3 $'000
Hunter	647	8.85	59,287	55,925
Illawarra	371	5.08	23,683	32,094
North Coast	382	5.22	33,470	33,013
New England	241	3.29	22,569	20,809
Orana & Far West	(142) (48)	2.61	22,277	16,470
Central West	230	3.15	22,737	19,900
South Eastern	186	2.54	17,189	16,067
Riverina	192	2.62	18,038	16,566
Murray	132	1.80	11,681	11,395
Inner Met.	885	12.12	157,964	76,581
Northern Met.	1,423	19.48	87,287	123,104
Southern Met.	1,134	15.52	89,094	98,105
Western Met.	1,295	17.72	66,746	111,989
STATE TOTAL*	7,308	100.00	632,019	632,019

* Minor differences in totals due to rounding.

TABLE 2.3 : INDICATION OF SENSITIVITY FOR UTILISATION WEIGHTING IN PER CAPITA ALLOCATION : 1975/76 ($'000s)

Region	Per Capita Utilisation weighted allocation	Per Capita allocation (1)
Hunter	55,925	55,144
Illawarra	32,094	35,135
North Coast	33,013	30,642
New England	20,809	22,032
Orana & Far West	16,470	17,198
Central West	19,900	20,163
South Eastern	16,067	16,275
Riverina	16,566	17,567
Murray	11,395	11,746
Inner Met.	76,581	67,906
Northern Met.	123,104	105,464
Southern Met.	98,105	90,857
Western Met.	111,989	141,886
STATE TOTAL*	632,019	632,019

* Minor differences in totals due to rounding.

(1) Percentages in Table A.8 used to calculate these amounts.

The sensitivity of weighting the population for age/sex variations in utilisation is tested by comparing the final allocation with an allocation based solely on a per capita basis (i.e. not taking account of age and sex variations in utilisation). The comparison is shown in Table 2.3.

The impact of elderly populations (and consequently high utilisation rates) can be seen quite dramatically in the Inner, Northern and Southern Metropolitan Health Regions and in the North Coast Health Region. By comparison the Western Metropolitan Health Region and the Illawarra Health Region receive substantially less money - the former in particular - when weightings are applied for variations in age/sex utilisation. If all regions had the same age/sex characteristics the allocations among regions in the two columns of Table 2.3 would be, of course, the same.

2.3 Schedule 5 Hospitals - Per Capita Utilisation Weighted Allocation

Fifth schedule hospitals, while predominantly psychiatric, also include such institutions as prison and geriatric hospitals. Funds allocated to Schedule 5 hospitals are for the following institutions:

Psychiatric Hospitals

Bloomfield
Rozelle
Gladesville
Grosvenor
Kenmore
Marsden
Morisset
Newcastle
North Ryde
Parramatta
Peat Island
Rydalmere
Stockton
Tomaree

Non-Psychiatric Hospitals

Allandale
David Berry
Garrawarra
Lidcombe
Randwick
Strickland
Prison Medical Services

There exists only minimal data, at present on non-psychiatric hospitals - this data does not include admissions. Data on the age/sex characteristics of all the psychiatric hospitals in Schedule 5 are included in the Health Commission publication "Inpatients Statistics of Psychiatric Hospitals" - 1973/74 is the last year available. Data from this publication was used to determine weightings for selected age groups in terms of admissions, although it must be borne in mind that the omission of large non-psychiatric hospitals such as Allandale and Lidcombe in the derivation of weightings may result in biased results. This problem could be rectified, in future calculations, with the inclusion of information on non-psychiatric Schedule 5 hospitals in the Hospital Morbidity Collection, which can then be used in conjunction with data on psychiatric hospitals.

A second problem associated with the use of age at admission as a weighting would arise if one region had few admissions to its Schedule 5 institutions - a long-stay/low-turnover institution. In this instance the region would have no influence on the estimation of age/sex weightings. To test for this possible bias, admissions to each Schedule 5 institution for a one-month period were compared with the number of persons in residence in those institutions (Table A.10). The use of age at the time of admission introduces a bias in favour of the four metropolitan regions (which have a higher turnover rate) to the detriment of the Hunter, Central West and South Eastern regions. The effect of this bias may require further investigation.

The selection of age groups to weight regional populations took cognisance of the fact that, unlike general hospitals, the very young and very old are not as heavy users of Schedule 5 institutions in terms of admissions. Most admissions occur in the age group 20-25. The age groups selected were 0-19, 20-39, 40-54 and 65 and over.

TABLE 2.4 : PSYCHIATRIC HOSPITAL ADMISSIONS PER THOUSAND POPULATION

Age	Males	Females	All
0-19	1.22	1.40	1.31
20-39	6.69	6.23	6.47
40-54	9.54	7.27	8.42
55+	6.78	5.46	6.05
ALL	5.24	4.59	4.91

Admissions to psychiatric institutions (including re-admissions) for the selected age/sex groups (Table A.11) were related to the same age/sex groups in the State's population (Table A.5), to determine psychiatric admission rates per 1,000 population in each group. It is worth noting in Table 2.4 the upward trend in admission rates in the age groupings 20-39 and 40-54.

TABLE 2.5 : RE-ALLOCATION OF SCHEDULE 5 FUNDS ON PER CAPITA BASIS WEIGHTED FOR AGE/SEX ADMISSION RATES: 1975-76

(1) Region	(2) % admission of total	(3) 75/76 Actual Sched. 5 Allocation $'000	(4) Re-adjusted Allocation as per Col.2 $'000
Hunter	8.66	20,275	8,472
Illawarra	5.40	301	5,276
North Coast	4.72	--	4,619
New England	3.30	--	3,229
Orana & Far West	2.60	--	2,543
Central West	3.07	5,573	3,002
South Eastern	2.51	5,143	2,455
Riverina	2.62	--	2,560
Murray	1.78	--	1,739
Inner Met.	11.72	21,431	11,461
Northern Met.	17.34	9,453	16,960
Southern Met.	15.40	5,237	15,061
Western Met.	20.87	30,368	20,404
STATE TOTAL	100.00	97,780	97,780

A notional number of admissions for each region was derived by multiplying the State's average admission rate for the selected age/sex groups (Table 2.4) by the population in each selected age/sex group in each region (Table A.7). The percentage distribution of these notional admissions (Col. 2, Table 2.5) is the factor used for re-distributing the 1975/76 actual maintenance expenditure of Schedule 5 hospitals among the regions (Col. 4, Table 2.5). Thus, this distribution is based on population weighted for variation in admission rates to Schedule 5 institutions by different age and sex groups.

TABLE 2.6 : INDICATION OF SENSITIVITY FOR ADMISSION WEIGHTING PER CAPITA ALLOCATION: 1975/76 - ($'000s)

Region	Per capita utilisation weighted allocation	Per capita allocation (1)
Hunter	8,472	8,531
Illawarra	5,276	5,436
North Coast	4,619	4,741
New England	3,229	3,409
Orana & Far West	2,543	2,661
Central West	3,002	3,119
South Eastern	2,455	2,518
Riverina	2,560	2,718
Murray	1,739	1,817
Inner Met.	11,461	10,506
Northern Met.	16,960	16,316
Southern Met.	15,061	14,056
Western Met.	20,404	21,951
STATE TOTAL	97,780	97,780

(1) Percentages in Table A.8 used to calculate these amounts.

Table 2.6 shows the effects of weighting age/sex groups of the population in accordance with admission rates compared to an allocation of Schedule 5 hospitals' expenditure on an unweighted population basis. Regions favoured by the weighting include the Inner and Southern Metropolitan health regions while those receiving lesser amounts than on a per capita allocation are the Hunter, Illawarra, North Coast, New England, Orana and Far West, Central West, Riverina, Murray and Western Metropolitan health regions.

2.4 Community Health - Per Capita Utilisation Weighted Allocation

The problems associated with determining an equitable formula for allocating community health funds are far greater than for institutional care - largely as a result of:

1. a dual funding system with Federal funds provided to regions separately from other forms of community health funds such as those for baby health centres. The latter funding by the State is grouped into "administration funding"; and
2. an incomplete data collection system between regions with markedly different scope and definitions.

On the other side of the coin, however, the level of funding involved is considerably less than for Schedule 2 and 3 or Schedule 5 hospitals.

In this Discussion Paper an attempt is made to weight regional populations for variations in different age and sex groups. Some of the assumptions made are questionable to such a degree that an unweighted per capita allocation may be equally appropriate pending the development of an improved data base.

Table A.13 shows the sex of persons who register as clients in those regions for which data are available and an unweighted average has been calculated. Females predominate in client registration in all regions.

In selecting age groups for weighting purposes, available information suggests that the groups 0-4, 5-14, 15-24, 25-44, 45-64 and 65 and over should be selected to highlight (as with general hospital care) the preponderance of community health services directed at the young and elderly. Table A.14 groups registrations reported by the regions from which an average was calculated, although this mean glosses over marked variations between regions. The reason for the low percentage of registrations in the 0-4 grouping for Northern Metropolitan, Illawarra and, to a lesser extent, Riverina regions is probably due to the exclusion of baby health and child health registration data.

No region other than Northern Metropolitan can provide an age by sex breakdown of new registrations, and as can be seen from Tables A.13 and A.14 this region looks atypical. In the absence of other data it was assumed that the sex ratio did not vary among the various age groups and Table A.15 shows an estimate of new registrations for the whole State

by age and sex groups. Obviously this assumption of no sex difference among age groups is false - the elderly would tend to be predominantly women whilst there would be a more equal ratio of males to females in the younger age groups.

TABLE 2.7 : NUMBER OF NEW REGISTRATIONS PER 1,000 POPULATION

Age	Males	Females	All
0-4	170.3	313.1	240.0
5-14	50.2	91.0	70.2
15-24	34.8	63.3	48.7
25-44	52.9	98.3	74.9
45-64	16.0	28.0	22.2
65+	161.5	193.5	180.5

The estimated number of new registrations per 1,000 population for the selected age groups is shown in Table 2.7 based on Tables A.15 and A.5 - the high registration factor is noted among the elderly and the young and to a lesser extent the 5-14 and 25-44 age groups. There is a surprising small registration rate for the 45-64 age groups. As with institutional care these rates were applied to each region's population age/sex groups (Table A.7) to estimate a notional utilisation for each region (Table A.16).

TABLE 2.8 : RELATIONSHIP BETWEEN REGIONS
FOR ALLOCATION OF COMMUNITY HEALTH
EXPENDITURE: 1975/76

Region	% to Total
Hunter	8.73
Illawarra	5.53
North Coast	4.95
New England	3.56
Orana & Far West	2.81
Central West	3.24
South Eastern	2.62
Riverina	2.84
Murray	1.90
Inner Met.	10.68
Northern Met.	16.70
Southern Met.	13.88
Western Met.	22.56
STATE TOTAL	100.00

Table ?.8 expresses the notional totals of regional utilisation in percentage terms to determine the regional allocation. As mentioned previously the amount of funds for community health activities is difficult to ascertain, for although the Federal funds are easily identified, those provided by the State are amalgamated with funds associated with the administration of regional offices. State community health funding includes for example salaries for baby health nurses, social workers, community sisters, dental assistants, health inspectors and medical officers providing health care rather than administrative services.

To determine how equitably community health funds are allocated it is necessary to attempt to incorporate State expenditure with the Federal community health allocations. At present, it appears feasible only to attempt a separation of administrative salaries into health care - both direct and indirect - and administration. Other items such as travel, motor vehicle, postage and telephone are too difficult to separate. From information provided by regional offices it appears that in some regions up to 80 percent of the salaries item of "Administration" relates to persons involved directly or indirectly in the provision of health care while for the smaller regions this percentage is far less. This variation in percentage between the larger and smaller regions can probably be attributed to the fixed cost associated with the administration of a regional office.

The total community health expenditure has been calculated from the regional estimates of the 1975/76 split of administration salaries between health care and regional administration (Table A.17) added to other community health expenditure - both State and Federally funded. The results are presented in Table 2.9. The population utilisation weights in Table 2.8 were used to allocate the total expenditure of $26,143,000 among the regions.

The concentration of community health funds in the Western Metropolitan and Illawarra Regions should be viewed in the context of the relative under-supply of general hospital services in those two regions. With the exception of the Hunter and North Coast regions (which are - on a per capita basis - relatively over-endowed with community health services), all other regions appear to equally carry the concentration of expenditure in the Western Metropolitan and Illawarra regions.

TABLE 2.9 : ESTIMATES OF COMMUNITY HEALTH EXPENDITURE: 1975/76

($'000's)

Region	Actual Community (1) Health expenditure	Actual Community Health expenditure (incl. Health care related Admin. Salaries)	Per Capita Utilisation weighted Allocation (2)	Variation + or -
Inner Met.	1,731	2,635	2,793	+158
Southern Met.	1,714	3,349	3,627	+278
Northern Met.	2,037	4,148	4,365	+217
Western Met.	4,443	6,397	5,898	-499
Hunter	1,321	2,379	2,282	- 97
Illawarra	1,359	2,040	1,445	-595
North Coast	850	1,354	1,293	- 61
Central West	399	687	848	+161
Orana & Far West	399	686	733	+ 47
South Eastern	355	548	685	+137
Riverina	303	601	743	+142
Murray	326	453	498	+ 45
New England	519	866	932	+ 66
TOTAL	15,756	26,143	26,143	0

(1) Federally funded Community Health Program.

(2) Using weights in Table 2.8 to allocate $26,143,000.

There appears to be minimal influence in the distribution of community health funds caused by weighting the population compared to an unweighted per capita allocation (Table 2.10). This indicates that a per capita allocation unweighted for regional variations in age and sex characteristics would currently be appropriate to apportion available community health funds.

TABLE 2.10 : INDICATION OF SENSITIVITY OF APPLYING DIFFERENT UTILISATION WEIGHTS FOR AGE/SEX GROUPINGS IN THE ALLOCATION OF COMMUNITY HEALTH FUNDS: 1975/76 ($'000's)

Region	Per Capita Utilisation Weighted Allocation	Per Capita Allocation (1)
Inner Met.	2,793	2,809
Southern Met.	3,627	3,758
Northern Met.	4,365	4,362
Western Met.	5,898	5,869
Hunter	2,282	2,281
Illawarra	1,445	1,453
North Coast	1,293	1,267
Central West	848	834
Orana & Far West	733	711
South Eastern	685	672
Riverina	743	727
Murray	498	486
New England	932	911
TOTAL	26,143	26,143

(1) Percentages in Table A.8 used to calcuate these amounts.

2.5 Fund Transference for Inter-Regional Patient Flows - Schedule 2 and 3 Hospitals

Inter-regional flows of general hospital patients occur for two main reasons: geographic and super-regional services. In the former instance patients travel to available hospital services which happen to be located in a health region other than their place of residence. Inter-regional flows also occur for the provision of services of a specialised nature. An ideal estimate of the cost of providing care within a region for persons whose place of residence is outside the region would involve:

1. the annual number of patient days within each region for categories of services provided to persons domiciled outside the region;
2. the average cost per patient day for these morbidity episodes; and thus
3. the total cost of care provided to these persons.

The use of morbidity episodes highlights variations in treatment of residents and non-residents of a region.

While the number of patient days involved in inter-regional flows can be estimated and these can be cross classified with morbidity episodes, the cost of various morbidity episodes is unknown. Thus, in calculating the monetary impact of patient flows, patient days were costed at the average patient-day cost of the region receiving the patient without regard to the patient morbidity. Costing at the average regional patient-day cost to a degree reflects the cost of specialised services within any region.

In the absence of State wide data from the Hospital Morbidity collection, a variety of sources were used to estimate the breakdown of patient days by place of patient origin. A computer printout showing region of hospitalsation by patient origin was obtained for 1974/75 morbidity data which was comprehensive for the Riverina, Murray, Hunter and Northern Metropolitan regions. Data for the Inner and Southern Metropolitan regions, North Coast and Orana and Far West were extrapolated from surveys conducted by or through the Division of Health Services Research. For the Western Metropolitan, South Eastern, Central Western, New England and Illawarra regions a sample was taken of unprocessed hospital morbidity forms. The relationship of patient origins between regions from these sources was used (Table A.18) to apportion the number of patient days reported for each region in the "Statistical and Financial Data Public Hospital 1974-75". It was assumed that there are only minor variations in the level of inter-regional patient flows over time. Information in the same publication was used to estimate regional average costs per occupied bed day for 1974/75 (Table A.19), and to derive a breakdown of regional expenditure by patient origin (Table A.20). The net effect of inter-regional transfers in monetary terms is shown in Table A.21 where, for example, the Inner Metropolitan Region is reimbursed $53,092,000 for the provision of services to persons whose place of residence is outside the region.

TABLE 2.11 : PER CAPITA ALLOCATION WEIGHTED FOR UTILISATION AND ADJUSTED FOR INTERSTATE/INTER-REGIONAL PATIENT FLOWS: 1975/76

SCHEDULE 2 AND 3 HOSPITALS ($'000's)

Region	(1) Weighted Per Capita Allocation (75/76)	(2) Net inter-region fund Transfer (74/75)	(3) Col. 2 at 75/76 Prices (2)	(4) Interstate flows into N.S.W.	(5) Adjusted Allocation Col. 1 & 3 & 4
Inner Met.	74,864	+53,092	+63,523	6,521	144,908
Northern Met.	120,344	- 5,683	- 6,800	581	114,125
Southern Met.	95,906	- 8,668	-10,371	2,997	88,532
Western Met.	109,478	-31,211	-37,344	103	72,237
North Coast	32,273	+ 80	+ 96	1,175	33,544
Hunter	54,672	- 1,590	- 1,902	126	52,896
Orana & Far West	16,101	- 831	- 994	733	15,840
New England	20,343	- 926	- 1,108	200	19,435
Illawarra	31,374	- 1,486	- 1,778	25	29,621
South Eastern	15,707	- 1,019	- 1,219	287	14,775
Central West	19,454	- 1,533	- 1,834	186	17,806
Riverina	16,195	- 246	- 294	81	15,982
Murray	11,140	+ 21	+ 25	1,153	12,318
TOTAL	617,851(1)	0	0	14,168	632,019

(1) Reapportioned net of amount for interstate transfer.

(2) Col. 2 x $\frac{632,019}{528,239}$ - See text for explanation.

It is also estimated that $14,168,000 was expended on persons whose place of residence is outside New South Wales (Table A.20). The majority of this expense is incurred in the Inner and Southern Metropolitan, North Coast and Murray regions and these regions should be reimbursed for providing this service. The amount expended by other States on persons whose place of residence is outside New South Wales is unknown. The per capita utilisation adjusted allocation in Column 5 of Table 2.2 is reallocated in the same proportion less the total of interstate expenditures (Table A.22).

In Table 2.11 amounts for inter-regional fund transfers are either added to or subtracted from each region and then interstate transfers are added back to show the adjusted regional allocation.

The average cost per occupid bed day related to 1974/75 statistical data, but as the calculation is based on 1975/76 it is necessary to convert the 1974/75 average cost into 1975/76 estimates. Total Schedule 2 and 3 maintenance expenditure for 1975/76 was $632,019,000 while for 1974/75 the equivalent amount was $528,239,000. It is thus necessary to convert the 1974/75 average cost into an estimate for 1975/76. Thus Column 3 of Table 2.11 recalculates net fund inter-regional transfers multiplying each amount by $\frac{632,019}{528,239}$. No similar adjustment is made for interstate cash transfers which are calculated on 1974/75 basis, but the margin of error thus introduced for any one region would be relatively small. As not all the increase in annual expenditure is attributable to increase in average bed day cost, this favours those regions with a net inflow of patients.

Finally, Table 2.12 shows comparisons between the actual allocation of 1975/76 funds for maintenance expenditure to Schedule 2 and 3 hospitals and the utilisation weighted per capita allocation adjusted for inter-regional flows.

TABLE 2.12 : COMPARISON OF PER CAPITA ALLOCATION ADJUSTED FOR INTER-REGIONAL FLOWS WITH ACTUAL ALLOCATION. SCHEDULE 2 & 3 HOSPITALS: 1975/76 ($'000's)

Region	(1) 1975/76 Actual Allocation	(2) 1975/76 Reallocation	(3) Difference
Inner Met.	157,964	144,908	-13,056
Northern Met.	87,287	114,125	+26,838
Southern Met.	89,094	88,532	- 562
Western Met.	66,746	72,237	+ 5,491
North Coast	33,470	33,544	+ 74
Hunter	59,287	52,896	- 6,391
Orana & Far West	22,277	15,840	- 6,437
New England	22,569	19,435	- 3,134
Illawarra	23,683	29,621	+ 5,938
South Eastern	17,189	14,775	- 2,414
Central West	22,737	17,806	- 4,931
Riverina	18,038	15,982	- 2,056
Murray	11,681	12,318	+ 637
STATE TOTAL*	632,019	632,019	0

* Minor errors in totals due to rounding.

2.6 Fund Transference for Inter-Regional Patient Flows - Schedule 5 Hospitals

Schedule 5 hospitals are located in only eight of the State's health regions and this is the main reason why inter-regional patient flows are significant. There is, however, only a limited amount of information available on the place of original residence of persons resident in these hospitals.

Data for patients' place of residence in Schedule 5 psychiatric hospitals are published only for admissions (including readmissions) but as has been argued (Table A.10) this is not a true reflection of the absolute number of patients in residence. If, as with general hospitals, admissions or discharges were the criteria for fund transfers, some psychiatric hospitals with a large turnover of patients would receive greater fund reimbursements than other hospitals with few admissions/discharges yet a large number of patients in residence.

This problem would also apply to general hospitals if one region had an excessive number of long-stay patients. For this reason the percentage distribution of home address of admitted patients was applied to the number in residence as a more appropriate method to estimate fund transfers. The assumption made is that the geographic origin of admissions approximates the geographic origin of patients in residence. An alternative, yet slightly more cumbersome, method would be to split patients into short-term and long-term categories and examine the place of origin of discharged patients. The place of origin of discharged long-term patients may be a better reflection of the place of origin of long-term patients still in residence.

Two prime sources were utilised to estimate the geographic origin of patients in residence:

1. For Schedule 5 psychiatric hospitals unpublished data were available for the place of origin of patients admitted during 1973-74.
2. The majority of other hospitals in Schedule 5 are currently covered in the hospital morbidity collection. A sample of unprocessed morbidity returns from each of these hospitals was analysed.

A notable, and in monetary terms the most important, omission from the latter data sources is Lidcombe Hospital, which has not yet provided morbidity data on its nursing home section. In this case it was assumed that the geographic origin of admissions to the acute section of the hospital (data of which were available from the hospital morbidity collection) approximated the nursing home section. There were insufficient admissions to Peat Island during 1973-74 to estimate geographic distribution of in-patients - subsequently no fund reimbursements for inter-regional patient flows was undertaken for this hospital.

The number of patients in residence as at 30 June 1976 in each Schedule 5 institution was distributed in the same proportion as admissions to that institution (Table A.23). These institutions were subsequently grouped into regions (Table A.24). Where a patient, on admission, was classified as having "No fixed address" the person was allocated to the region in which the institution was located - this was of particular significance for psychiatric hospitals in the Inner Metropolitan Region - the estimated net effect of inter-regional flows is shown in Table A.25.

Table A.26 translates the previous table into cash amounts at an average annual amount of $11,908 per patient per year (or $32.63 per patient day). This amount was obtained by dividing the total number in residence in institutions as at 30 June 1976 (less Prison Medical Services about which information was not supplied) of 8,137 persons into the Total 1975/76 Schedule 5 maintenance expenditure - $98,780,000 (again less Prison Medical Services).

In determining fund reimbursements for Schedule 2 and 3 hospitals the average cost per bed day of the region in which the patient received care was applied rather than average cost per bed day for the State as a whole - this was to take account of the more specialised services provided at metropolitan hospitals. For Schedule 5 hospitals there is no comparable grouping of specialised services and fund reimbursements are estimated on the basis of the State's average cost per patient in residence per year (i.e. $11,908).

This figure of $11,908 in all probability marginally favours regions who are net recipients of fund reimbursements - those regions with Schedule 5 institutions - as it overestimates the cost per in-patient year. Increasingly Schedule 5 hospitals are providing large out-patient services (predominantly for clients lo-ated within the region) but this cost has not been separated from the total Schedule 5 maintenance expenditure in deriving the average cost per in-patient year.

Interstate flows of psychiatric patients are of particular importance for the South Eastern Region which caters for the A.C.T. The total cost of non-N.S.W. Schedule 5 patients is estimated (Table A.26) at $2,131,000 per annum of which $1,107,000 was for Kenmore. In Column 1 of Table 2.13 the per capita allocation of Column 4, Table 2.5 was recalculated after the amounts for interstate transfers-in and Prison Medical Services were deducted from the total. Column 2 shows the net fund addition or subtraction resulting from inter-regional patient flows and Column 3 shows the new allocation. Column 4 adds back in interstate amounts and $882,000 for the Southern Metropolitan Region for Prison Medical Services.

TABLE 2.13 : ALLOCATION OF SCHEDULE 5 FUNDS INCLUDING FUND TRANSFERS FOR PATIENT FLOWS: 1975/76 ($'000's)

Region	(1) Per Capita Allocation (1)	(2) Net Fund Transfers	(3) (1) + (2)	(4) (3) plus Exclusions
Hunter	8,223	+12,241	20,464	20,952
Illawarra	5,121	- 3,560	1,561	1,561
North Coast	4,483	- 1,822	2,661	2,661
New England	3,135	- 1,727	1,408	1,408
Orana & Far West	2,468	- 2,895	- 427	- 427
Central West	2,914	+ 3,287	6,201	6,344
South Eastern	2,383	+ 3,024	5,407	6,514
Riverina	2,485	- 1,001	1,484	1,484
Murray	1,688	- 846	842	842
Inner Met.	11,125	+ 2,763	13,888	14,007
Northern Met.	16,462	- 5,917	10,545	10,557
Southern Met.	14,619	- 3,858	10,761	11,655
Western Met.	19,805	+ 311	20,116	20,223
STATE TOTAL	94,910	0	94,910	97,780

(1) Reallocation of Col. 4, Table 2.5 less funds for interstate patient flows and Prison Medical Services.

TABLE 2.14 : SCHEDULE 5 HOSPITALS COMPARISON OF PER CAPITA ALLOCATION ADJUSTED FOR INTER-REGIONAL PATIENT FLOWS WITH ACTUAL ALLOCATION: 1975/76 ($'000's)

Region	1 Actual Sched. 5 Allocation (1)	2 Per Capita Adj. Allocation	3 Difference 2 - 1 (+ or -)
Hunter	20,275	20,952	+ 677
Illawarra	301	1,561	+ 1,260
North Coast	-	2,661	+ 2,661
New England	-	1,408	+ 1,408
Orana & Far West	-	- 427	- 427
Central West	5,573	6,344	+ 771
South Eastern	5,143	6,514	+ 1,371
Riverina	-	1,484	+ 1,484
Murray	-	842	+ 842
Inner Met.	21,431	14,007	- 7,424
Northern Met.	9,453	10,557	+ 1,104
Southern Met.	5,237	11,655	+ 6,418
Western Met.	30,368	20,223	- 10,145
STATE TOTAL	97,780	97,780	0

(1) Col. 3, Table 2.5

Table 2.14 facilitates a comparison of the actual 1975/76 Schedule 5 allocation and a per capita utilisation weighted allocation adjusted for inter-regional flows. Of particular interest is the high concentration of Schedule 5 maintenance expenditure in the Western and Inner Metropolitan regions at the expense of virtually all other regions (especially Southern Metropolitan, North Coast, Riverina, New England and Illawarra regions). It should be emphasised, once again, that there is some bias in some of these results because of the lack of accounting for out-patient services. This applies especially to the Southern Metropolitan Region, which receives psychiatric out-patient services provided by staff paid by the Inner Metropolitan Region.

2.7 Teaching and Research - Schedule 2 and 3 Hospitals

Due to a variety of reasons, major difficulties were encountered in attempting to cost the education component of Schedule 2 and 3 maintenance expenditure. For reasons outlined briefly in Section 1 education expenditure associated with the training of nurses was ignored and attention was focused on two areas: medical students and dental students.

Teaching hospitals have an average cost per occupied bed day which, in general, is substantially higher than other hospitals in the State. Part of this cost differential is due to the provision of specialised services and part is due to education of medical students. In order to quantify this differential an attempt was made to linear regress hospital bed size with cost for teaching hospitals and non-teaching hospitals separately. It was postulated the difference between the two regressions would indicate teaching costs, however, no significant correlation was found between costs and bed size.

The approach finally adopted was based on the assumption that the overwhelming proportion of teaching costs met by the Health Commission relate to the salaries of Interns, Resident Medical Officers (R.M.O.'s) and Registrars (as mentioned in the introduction, the Universities Commission meets the salaries of teaching staff in hospitals and a portion of administrative expenses). The number of R.M.O.'s, Registrar and Intern placements was derived from the forward estimates of expenditure provided by hospitals to the Health Commission which detail all hospital positions and associated salary estimates. Column 2 of Table 2.15 shows for each region an estimate of the percentage of their 1975/76 Schedule 2 and 3 maintenance expenditure which was devoted to salaries of Interns, R.M.O.'s and Registrars, while Column 3 specifies the actual total salary expenditure.

To estimate the relative proportion of time spent by Interns, R.M.O.'s and Registrars in both care-providing activities and education activities proved difficult. A recent study funded by the Commission, and undertaken by Community Systems Foundation has determined the minimum amount of time spent in education activities by identifying those activities which were clearly education oriented - their findings are replicated in Table A.27. However, there is no doubt that many other functions of Interns, R.M.O.'s and Registrars are non-essential and/or repetitive functions which would be classified as education activities and, for this reason, two estimates of time were calculated which might represent upper and lower limits. These estimates were 20 percent lower limit and 50 percent upper limit. Based on the lower limit of 20 percent, Column 7 of Table 2.15 shows the total estimated 1975/76 salaries of Interns, R.M.O.'s and Registrars which could be related to education activities. Column 8 reapportions the total per capita utilisation weighted allocation, adjusted for inter-regional flows, (Column 5, Table 2.11) net of expenditure on teaching in the same proportion as the allocation in Column 5 of Table 2.11. In Columns 6 and 9 teaching expenditure is added to the allocation of those regions in which it is incurred to determine an allocation adjusted for medical education. The comparison of Column 6 allocation to Column 9 allocation shows that the adoption of either 20 percent or 50 percent of Interns, R.M.O.'s and Registrars salaries as education does not change the outcome substantially.

The United Dental Hospital is a high cost institution, located in the Inner Metropolitan Region, which provides a super-regional service and has a teaching and research responsibility. In addition to drawing patients from throughout the State, the hospital provides Road and Travelling Dental Clinics and funds Dental Cadetships, a Dental Research Institute and a Dental Technicians Course. As such the maintenance cost of this institution should be borne by all regions.

Table 2.16 shows an estimate for 1975/76 maintenance expenditure for the United Dental Hospital ($4.3 million) - this expenditure is deducted from the 1975/76 Schedule 2 and 3 hospital maintenance expenditure - the remainder is then reallocated in the same proportion as Column 9 of Table 2.15. The expenditure for the Dental Hospital is added back to Inner Region in Column 3 to determine an allocation of Schedule 2 and 3 hospital maintenance expenditure adjusted for the United Dental Hospital.

TABLE 2.15 : SCHEDULE 2 & 3 HOSPITAL EXPENDITURE - PER CAPITA UTILISATION WEIGHTED ALLOCATION ADJUSTED FOR MEDICAL EDUCATION: 1975/76

Region	(1) Schedule 2&3 Hospitals Actual Exp. 1975/76 $'000	(2) Interns/RMO/Reg. Salaries as % of exp. %	(3) Est. RMO/Reg. Salaries $'000	(4)	(5) Education - 50%	(6)	(7)	(8) Education - 20%	(9)
				50% of Col.(3) $'000	Apportion net of teaching $'000	Addition of teaching allocation Col. 4	20% of Col.(3) $'000	Apportion net of teaching $'000	Addition of teaching allocation Col. 7
Inner Met.	157,964	4.3	6,792	3,396	142,661	146,057	1,358	144,011	145,369
Northern Met.	87,287	3.7	3,230	1,615	112,354	113,969	646	113,417	114,063
Southern Met.	89,094	5.2	4,633	2,317	87,158	89,475	927	87,982	88,909
Western Met.	66,746	4.1	2,737	1,369	71,116	72,485	547	71,789	72,336
North Coast	33,470	0.8	268	134	33,023	33,157	54	33,336	33,390
Hunter (1)	59,287	-	-	-	52,075	52,075	-	52,568	52,568
Orana & Far West	22,277	1.2	267	134	15,594	15,728	53	15,742	15,795
New England	22,569	1.8	406	203	19,133	19,336	81	19,314	19,395
Illawarra	23,683	3.2	758	379	29,161	29,540	152	29,437	29,589
South Eastern	17,189	0.4	69	35	14,546	14,581	14	14,683	14,697
Central West	22,737	0.9	205	103	17,530	17,633	41	17,695	17,736
Riverina	18,038	0.8	144	72	15,734	15,806	29	15,883	15,912
Murray	11,681	0.9	105	53	12,127	12,180	21	12,242	12,263
STATE TOTAL	632,019	3.1	19,620	9,810	622,209	632,019	3,923	628,096	632,019

Notes: (1) No forward estimates of expenditure specifying hospital salaries were available for the Hunter Region.

Minor errors in addition due to rounding.

For explanation of this table see text.

TABLE 2.16 : SCHEDULE 2 & 3 HOSPITAL EXPENDITURE - ADJUSTMENT OF ALLOCATION FOR UNITED DENTAL HOSPITAL: 1975/76 ($'000's)

Region	(1) Allocation as per Col. 9 Table 2.15	(2) Col. 1 Reapportioned net of United Dental expenditure	(3) Re-inclusion of United Dental expenditure	(4) Difference between Col. 3 and actual Allocation Col. 1, Table 2.15
Inner Met.	145,369	144,390	148,647	- 9,317
Northern Met.	114,063	113,295	113,295	+ 26,008
Southern Met.	88,909	88,310	88,310	- 784
Western Met.	72,336	71,849	71,849	+ 5,103
North Coast	33,390	33,165	33,165	- 305
Hunter	52,568	52,214	52,214	- 7,073
Orana & Far West	15,795	15,689	15,689	- 6,588
New England	19,395	19,264	19,264	- 3,305
Illawarra	29,589	29,390	29,390	+ 5,707
South Eastern	14,697	14,598	14,598	- 2,591
Central West	17,736	17,616	17,616	- 5,121
Riverina	15,912	15,805	15,805	- 2,233
Murray	12,263	12,180	12,180	+ 499
STATE TOTAL	632,019	627,762	632,109	0

Minor errors due to rounding.

Owing to the relatively small amounts involved no account was taken of expenditure on other research units or super-regional services (e.g. Sydney - Kanematsu Memorial Institute of Pathology, Royal North Shore - Institute of Medical Research, Sydney Home Nursing Service, Australian Red Cross Society) although in future allocations they could be accounted for in a similar manner to the United Dental Hospital.

A better and less cumbersome way of making these adjustments would involve the subtraction of education and other super-regional expenses from the total amount to be allocated to the region, before the per capita allocation is made and to add these amounts back to regional allocations after adjustments for patient flows.

Accounting for the expenditure of the United Dental Hospital is the final adjustment to the per capita allocation of Schedule 2 and 3 funds. Adjustments have been effected for:

1. Variations in utilisation by specific age/sex groups.
2. Inter-regional patient flows.
3. Interstate patient flows.
4. Teaching of medical and dental students.

Column 4 of Table 2.16 compares the difference between the allocation as per the formula and the actual 1975/76 allocation.

2.8 Administration

It is postulated that there are fixed and variable costs associated with administration expenditure. The fixed costs are the basic minimum costs necessary to operate a Regional Office while variable costs are the additional costs necessitated by the population size of the region.

The region with the smallest administration expenditure, smallest total expenditure and smallest population (considering Orana and Far West as one region) is the Murray Health Region.

When the estimate for community health salaries is subtracted from the Murray's "administration" item, net administration expenditure totalled approximately $230,000 in 1975/76. This amount has been taken as the fixed cost of operating a regional office which all regions should receive. Regional expenditures over and above this amount could be considered variable and calculated on the basis of the population of the specific region.

TABLE 2.17 : 1975/76 ADMINISTRATION EXPENDITURE RE-ALLOCATED (NET OF COMMUNITY HEALTH SALARIES)

($'000's)

Region	(1) Actual Admin. Exp. less C.H. Salaries	(2) 75/76 Re-allocation	(3)	(4)	(5) (4) - (1)
		Fixed	Variable(1)	Total	(+ or -)
Inner Met.	665	230	354	584	- 81
Southern Met.	770	230	473	703	- 67
Northern Met.	1,073	230	549	779	- 294
Western	989	230	739	969	- 20
Hunter	624	230	287	517	- 107
Illawarra	373	230	183	413	+ 40
North Coast	320	230	160	390	+ 70
New England	239	230	115	345	+ 106
Orana & Far West	250	230	90	320	+ 70
Central West	220	230	105	335	+ 115
Riverina	229	230	91	321	+ 92
Murray	230	230	-	230	-
South Eastern	237	230	85	315	+ 78
STATE TOTAL	6,219	2,990	3,229	6,219	0

(1) Allocated on a per capita basis.

Table 2.17 compares the actual 1975/76 administration expenditure of regional offices net of the salaries expended on community health with the amount re-allocated on the basis described above. Northern Metropolitan and Hunter regions and to a lesser extent the remaining three metropolitan regions appear to receive a disproportionate amount of administration funds according to the formula at the expense of all other regions, particularly Central West and New England regions.

2.9 Health Needs

The regional allocation on a per capita basis adjusted for utilisation factors differentiated the four areas of expenditure (viz. Schedule 2 and 3 hospitals, Schedule 5 hospitals, Community Health Services and Administration). The following allocation on the basis of need is applied solely to the total regional allocations. It would be equally possible to derive a need allocation for each of the above four areas. The total allocation of health maintenance expenditure to Regions in 1975/76 was $762,163,000.

The "expected deaths" in Table 2.18 are derived by applying the State average death rate for each five year age/sex group to the age/sex population structure of each region. The resultant total is the number of deaths that would have occurred in each region had that region's age and sex specific death rates equated the State average. If actual deaths in a region are greater than the expected deaths based on the average age/sex standardised death rates then that region is considered to be an area of need.

The latest year for which age/sex distributions for regional populations are available is 1971 (Census), for this reason expected and actual deaths relate to that year.

As can be seen in Table 2.18 those regions which are areas of need by this criterion are:

Inner Metropolitan
Western Metropolitan
Hunter
Orana
Far West
Central West
Riverina

TABLE 2.18 : REGIONAL COMPARISON OF "EXPECTED" AND ACTUAL DEATHS

Region	(1) Expected Deaths[1] 1971	(2) Actual Deaths 1971	(3) $\frac{(2)}{(1)}$ x Pop. 1975	(4) % of Total
Inner Met.	5,725	6,298	565,489	11.77
Northern Met.	8,019	7,332	729,954	15.19
Southern Met.	6,824	6,731	678,397	14.12
Western Met.	6,498	6,921	1,143,978	23.80
Hunter	3,736	3,807	425,363	8.85
Illawarra	1,866	1,822	259,698	5.40
North Coast	2,357	2,060	202,731	4.22
New England	1,339	1,329	165,534	3.44
Orana	820	848	101,253	2.11
Central West	1,353	1,366	154,097	3.21
South Eastern	1,045	1,030	121,432	2.53
Riverina	1,070	1,103	137,081	2.85
Murray	740	714	85,796	1.79
Far West	298	319	34,555	0.72
STATE TOTAL	41,690	41,680	4,805,358	100.00

(1) For explanation of "expected deaths" see text.

To derive a method for allocating funds by this criteria Column 3 of Table 2.18 multiplies each region's population by the ratio of actual over expected deaths for the region so that funds can be allocated according to the relationship between the regions (Column 4). If all regions were of equal population size, the total in Column 3 would equal the 1975 State population estimate. The effects of multiplying the ratio of actual deaths to expected deaths by the 1975 population estimate favours high population areas of need (e.g. Western Metropolitan Region) to the detriment of high population lesser need regions (e.g. Northern Metropolitan). However, the bias is not substantial.

Table 2.19 shows the number of infant deaths in each region for the last three years available and the three year average.

TABLE 2.19 : INFANT MORTALITY BY REGION: 1973-1975

	INFANT DEATHS UNDER ONE YEAR				
Region	1 1973	2 1974	3 1975	4 3 years Ave.	5 % State Total
Inner Met.	169	182	172	174	12.60
Northern Met.	195	203	166	188	13.59
Western Met.	380	365	311	352	25.45
Southern Met.	222	175	141	179	12.96
North Coast	60	65	55	60	4.34
New England	60	68	48	59	4.24
Orana	46	39	35	40	2.89
Hunter	128	112	104	115	8.29
Illawarra	90	91	64	82	5.91
South Eastern	34	25	27	29	2.07
Central West	41	44	38	41	2.96
Riverina	43	30	35	36	2.60
Murray	17	26	22	22	1.57
Far West	6	3	13	7	0.53
STATE TOTAL	1,491	1,428	1,231	1,383	100.00

The use of infant mortality as an indicator of need would favour:

Inner Metropolitan
Western Metropolitan
New England
Orana
Illawarra

Table 2.20 shows allocations of the total amount of maintenance expenditure for 1975/76 among the regions, based on the proportions indicated in Tables 2.18 and 2.19 for regional populations weighted for differences in age/sex specific death rates and the distribution of infant deaths among the regions. The two allocations have been averaged to reflect both factors.

TABLE 2.20 : TOTAL 1975/76 ALLOCATION BY NEED CRITERIA: ($'000's)

Region	(1) Allocated by Infant Mortality (b)	(2) Allocated by Standardised Death (c)	(3) Average of (1) and (2)
Inner Met.	96,033	89,707	92,870
Northern Met.	103,578	115,773	109,676
Western Met.	193,970	181,395	187,683
Southern Met.	98,776	107,617	103,197
North Coast	33,078	32,163	32,621
New England	32,316	26,218	29,267
Hunter	63,183	67,451	65,317
Illawarra	45,044	41,157	43,101
South Eastern	15,777	19,283	17,530
Central West	22,560	24,465	23,513
Riverina	19,816	21,722	20,769
Murray	11,966	13,643	12,804
Far West	4,039	5,488	4,764
Orana	22,027	16,082	19,055
STATE TOTAL	762,163 (a)	762,163 (a)	762,163

(a) This is the total 1975/76 Allocation to Regions for Admin., Sched. 2, 3, 5 and Community Health Expenditure.

(b) The total expenditure ($762,163,000) has been distributed on the basis of Column 4 in Table 2.18.

(c) The total expenditure ($762,163,000) has been distributed on the basis of Column 5 in Table 2.19.

TABLE 2.21 : SUMMARY OF SCHEDULE 2 & 3 AND 5 HOSPITALS FUND TRANSFERS FOR INTER-REGIONAL/INTERSTATE PATIENT FLOWS AND TEACHING AND RESEARCH

($'000's)

Region	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Schedule 2 & 3		Schedule 5		Teaching & Research etc.		
	Interstate Adjustment	Inter-regional Adjustment	Interstate Adjustment	Inter-regional Adjustment	Salaries of Int's RMO's/Registrars	United Dental Hospital	Total
Inner Met.	6,521	+ 63,525	119	+ 2,763	1,358	4,257	+ 78,543
Northern Met.	581	- 6,800	12	- 5,917	646		- 11,478
Southern Met.	2,997	- 10,371	894	- 3,858	927		- 9,411
Western Met.	103	- 37,344	107	+ 311	547		- 36,276
North Coast	1,175	+ 96		- 1,822	54		- 497
Hunter	126	- 1,902	488	+12,241	-		+ 10,953
Orana & Far West	733	- 944		- 2,895	53		- 3,103
New England	200	- 1,108		- 1,727	81		- 2,554
Illawarra	25	- 1,778		- 3,560	152		- 5,161
South Eastern	287	- 1,219	1,107	+ 3,024	14		+ 3,213
Central West	186	- 1,834	143	+ 3,287	41		+ 1,823
Riverina	81	- 294		- 1,001	29		- 1,185
Murray	1,153	+ 25		- 846	21		+ 353
STATE TOTAL	14,168	0	2,870	0	3,923		25,218

Sources:
Column 1 : Column 4, Table 2.11
Column 2 : Column 3, Table 2.11
Column 3 : These adjustments are for interstate transfers in Table A.26 and Prison Medical Services funds to the Southern Metropolitan Region.
Column 4 : Column 2, Table 2.13
Column 5 : Column 7, Table 2.15
Column 6 : Columns 2 and 3 of Table 2.16

TABLE 2.22 : HEALTH NEED ALLOCATION ADJUSTED FOR INTER-REGIONAL AND INTERSTATE PATIENT FLOWS, TEACHING AND RESEARCH AND OTHER: 1975/76 ($'000's)

Region	(1) Health Need Allocation (1)	(2) (1) Plus Adjustment(2)	(3) Total Actual Allocation 75/76	(4) (2) - (3)
Inner Met.	89,797	168,340	182,694	- 14,354
Northern Met.	106,047	94,569	101,961	- 7,392
Western Met.	181,473	145,197	104,500	+ 40,697
Southern Met.	99,782	90,371	98,449	- 8,078
North Coast	31,542	31,045	35,144	- 4,099
New England	28,299	25,745	23,674	+ 2,071
Hunter	63,156	74,109	82,565	- 8,456
Illawarra	41,675	36,514	26,396	+ 10,118
South Eastern	16,950	20,163	23,117	- 2,954
Central West	22,735	24,558	29,217	- 4,659
Riverina	20,082	18,897	18,868	+ 29
Murray	12,380	12,733	12,364	+ 369
Orana & Far West	23,031	19,928	23,214	- 3,286
TOTAL	736,945	762,163	762,163	0

(1) Allocation of Total expenditure minus Interstate Transfers, Teaching and Research and other adjustments on same proportions as in Column 3, Table 2.20.

(2) Column 1 plus or minus adjustments as in Column 7 of Table 2.21.

TABLE 2.23 : PERCENTAGE DIFFERENCE BETWEEN ACTUAL 1975/76 ALLOCATION AND ALLOCATION AS PER THE FORMULA

Region	(1) PER CAPITA UTILISATION WEIGHTED ALLOCATION	(2)	(3)	(4)	(5)	(6)	(7)
	Sched. 2 & 3 %	Sched. 5(1) ($'000's)	Community Health %	Administration %	Total(3) %	Per Capita Health Need Weighted Total Allocation %	Demand and Need Allocation (2) (5 + 6) %
Inner Met.	- 6	- 7,424	+ 6	- 12	- 9	- 8	- 8.5
Southern Met.	- 1	+ 6,418	+ 8	- 9	+ 6	- 8	- 1
Northern Met.	+ 30	+ 1,104	+ 5	- 27	+ 26	- 7	+ 9.5
Western Met.	+ 8	-10,145	- 8	- 2	- 5	+ 39	+ 17
Hunter	- 12	+ 677	- 4	- 17	- 8	- 10	- 9
Illawarra	+ 24	+ 1,260	- 29	+ 11	+ 24	+ 38	+ 31
North Coast	- 1	+ 2,661	- 5	+ 22	+ 7	- 12	- 2.5
New England	- 15	+ 1,408	+ 8	+ 44	- 7	+ 9	+ 1
Orana & Far West	- 30	- 427	+ 7	+ 28	- 30	- 14	- 22
Central West	- 22	+ 771	+ 23	+ 52	- 14	- 16	- 15
Riverina	- 12	+ 1,484	+ 24	+ 40	- 3	..	- 1.5
Murray	+ 4	+ 842	+ 10	..	+ 11	+ 3	+ 7
South Eastern	- 15	+ 1,371	+ 25	+ 33	- 4	- 13	- 8.5

(1) As only eight regions receive Schedule 5 funds percentage differences between actual and per formula allocations, in some cases, cannot be calculated. Results are, therefore, presented in $ terms.

(2) Columns 5 and 6 were combined on a 1:1 basis.

(3) These percentages were obtained by summating the formula allocations in eachof the previous four areas and comparing the total with actual allocation.

Table 2.21 shows adjustments which have been previously estimated for Interstate and Inter-regional patient flows for Schedule 2, 3 and 5 hospitals, and also for Teaching and Research, the United Dental Hospital and the Prison Medical Services. The net total of these adjustments ($25,218,000 - Column 7) has been subtracted from the total 1975/76 maintenance expenditure ($762,163,000); the remainder of $736,945,000 was then allocated to each region in the same proportion as the Health Need allocation previously estimated (Table 2.20, Column 3). The result is shown in Column 1 of Table 2.22. The net adjustments previously estimated for each region (Table 2.21, Column 7) have then been added or subtracted from each region's allocation (Column 1 of same Table) and shown in Column 2 of Table 2.22. The difference between the final allocation and the actual expenditure in each region for 1975/76 is shown in Column 4 of Table 22.2.

2.10 Conclusion

The results of the comparison of the application of different factors to the per capita allocation and the actual allocation for 1975/76 are presented in the following graphs.

In considering the graphs there are several explanatory notes which are crucial to their understanding:

1. It is worth re-emphasising that this Section should be viewed as a feasibility test of applying the formula rather than an actual proposal for expenditure re-allocation. While care was taken in the use of data, there may be statistical errors.
2. The regional populations used were derived from A.B.S. estimates which are at variance with the 1976 preliminary Census data particularly with respect to the Northern, Southern and Inner Metropolitan regions, which A.B.S. estimates were excessive. Any bias so introduced is not thought to be major. Nevertheless, it is worth noting, that in inter-censal years the described formula would discriminate against regions with high population growth rates unless accurate population estimates could be developed.

3. Care provided by private hospitals, nursing homes, private medical practice and other services provided by the private sector is not considered in the formula.

4. The use of patient days in the weighting of population for the allocation of funds for Schedule 2 and 3 hospitals may favour those regions with an elderly population.

5. The estimated absolute flow of patients in-between regions may be in some cases in itself an important indicator of regional requirements, without taking into account population differences. The regions in descending order of magnitude with greatest net outflow of Schedule 2 and 3 hospital patients were as follows:

   Western Metropolitan,
   Southern Metropolitan,
   Northern Metropolitan,
   Hunter,
   Central West,
   Illawarra.

   The regions with the greatest outflow of Schedule 5 hospital patients were:

   Northern Metropolitan,
   Southern Metropolitan,
   Illawarra,
   Orana and Far West.

   However, in some cases net flows of patients can be the result of major hospital catchment areas which spread across regional boundaries. An example of this is the flow of patients from Woollahra, Waverley and South Sydney municipalities in the Southern Metropolitan Region to hospitals in the Inner Metropolitan Region because of geographical proximity, road and public transport patterns.

6 The allocation of administration funds was calculated net of salaries of persons who are directly or indirectly involved in the delivery of health care. As estimates were made for some regions who were unable to estimate the approximate proportion of salaries as health care/ administration this allocation should be viewed with caution.

Table 2.23 and the subsequent graphs are calculated by determining the percentage difference, for each region, between its actual 1975/76 allocation and the amount it would have been allocated according to the formula. Separate graphs are shown for:

Adjusted Per Capita utilisation weighted Allocation for
- Schedule 2 and 3
- Schedule 5
- Community Health
- Administration
- Total

Adjusted Per Capita need weighted Allocation
Combined Per Capita Allocation weighted for
Utilisation and Need Factors

Some tentative conclusions can be drawn from the graphs.

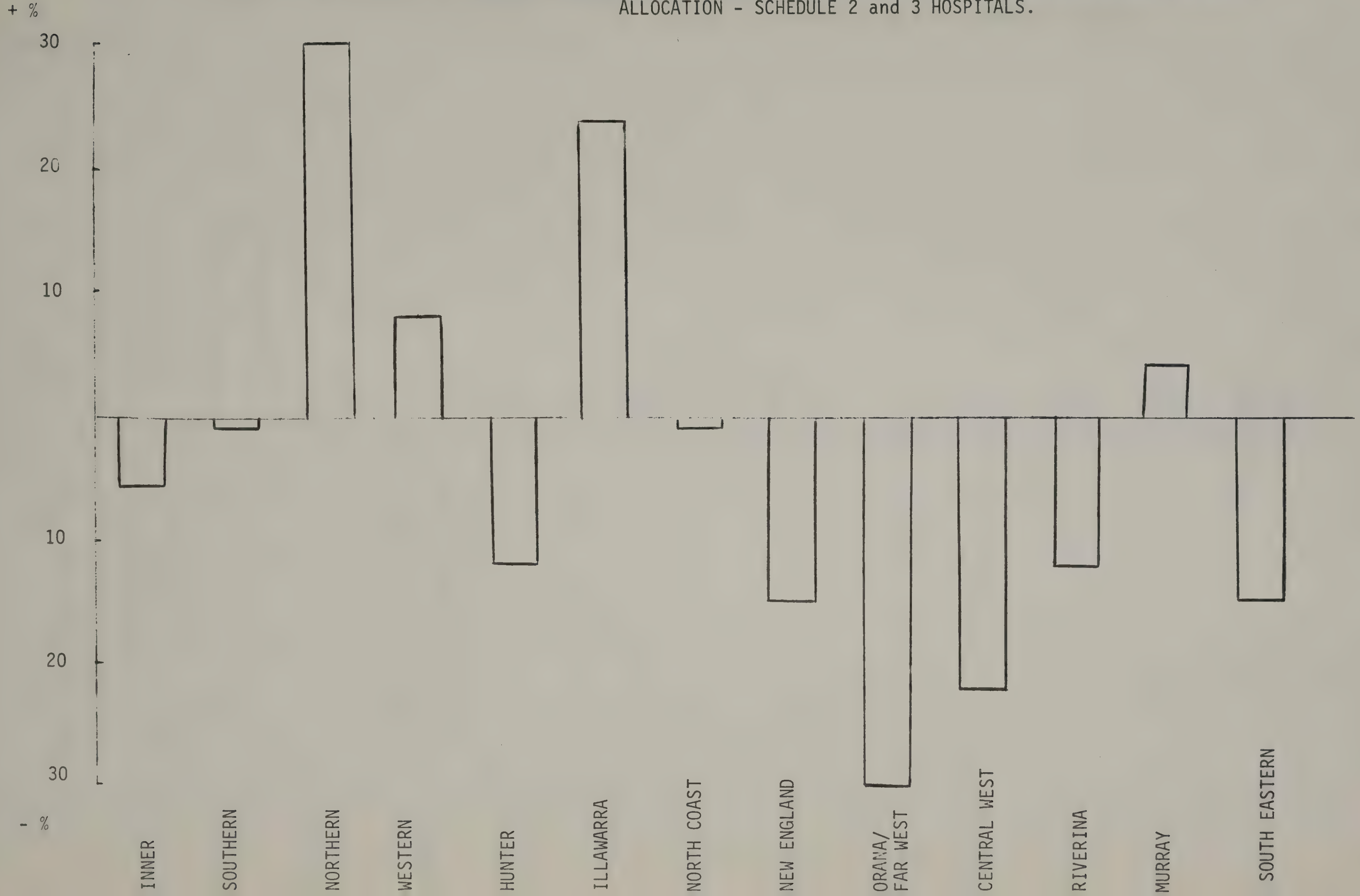
The formula for the allocation of funds for administration (Graph 4) shows that all rural regions, with the exception of the base region Murray would receive greater amounts at the expense of metropolitan regions (particularly Northern Metropolitan). If this is not a reflection of mis-allocation it may well indicate that the selected method of allocation of funds for administration might be biased in favour of rural regions.

A comparison of the per capita allocation weighted for health needs (Graph 6) and per capita allocation weighted for utilisation (Graph 5) indicates major changes in resource allocation for the Northern and Western Metropolitan regions and, to a lesser extent, for the Southern Metropolitan, North Coast and New England regions.

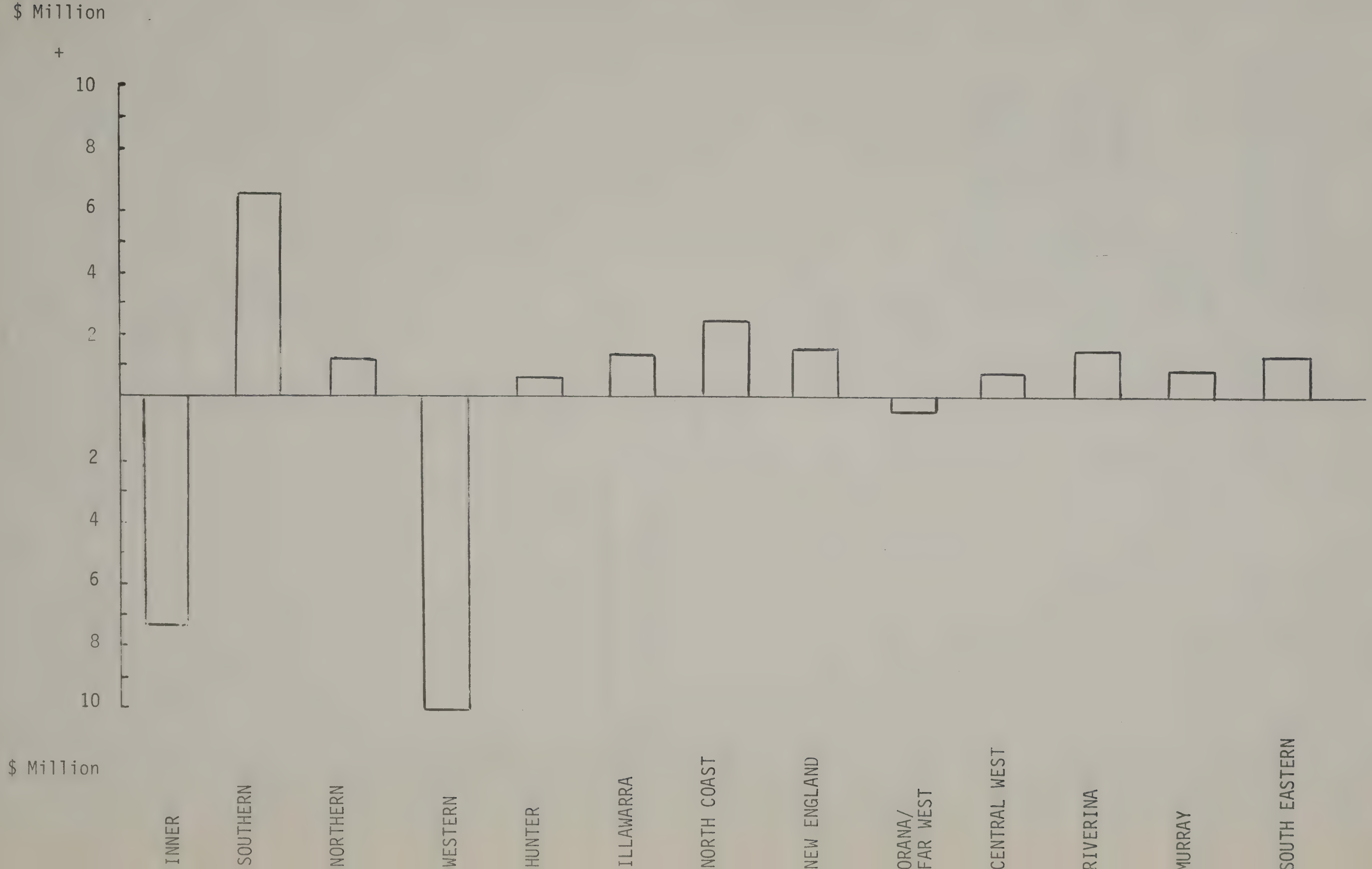
Graph 5 shows that the Western Metropolitan region, according to the per capita allocation weighted for utilisation would surprisingly receive less than its current total allocation of health resources. While this appears to be partly attributable to the biases against that region as described earlier under 2, 4 and 5, much of it can be attributed to the apparent high concentration of Schedule 5 hospital funds in the region and to the outward flow of patients to the Inner Metropolitan Region because of the lack of general hospital facilities in the Western Metropolitan Region.

The final graph, which incorporates both utilisation and need factors, is derived by combining the health needs allocation (Graph 6) with the utilisation allocation (Graph 5) with equal weights given to each. As is seen, on the basis of this formula the Illawarra Region would receive the greatest percentage increase of health resources over its current allocation followed by Western Metropolitan, Northern Metropolitan, Murray and New England Regions. The greatest percentage decreases would occur in Orana and Far West, Central West, Hunter, South Eastern, Inner Metropolitan, North Coast, Riverina and Southern Metropolitan Regions.

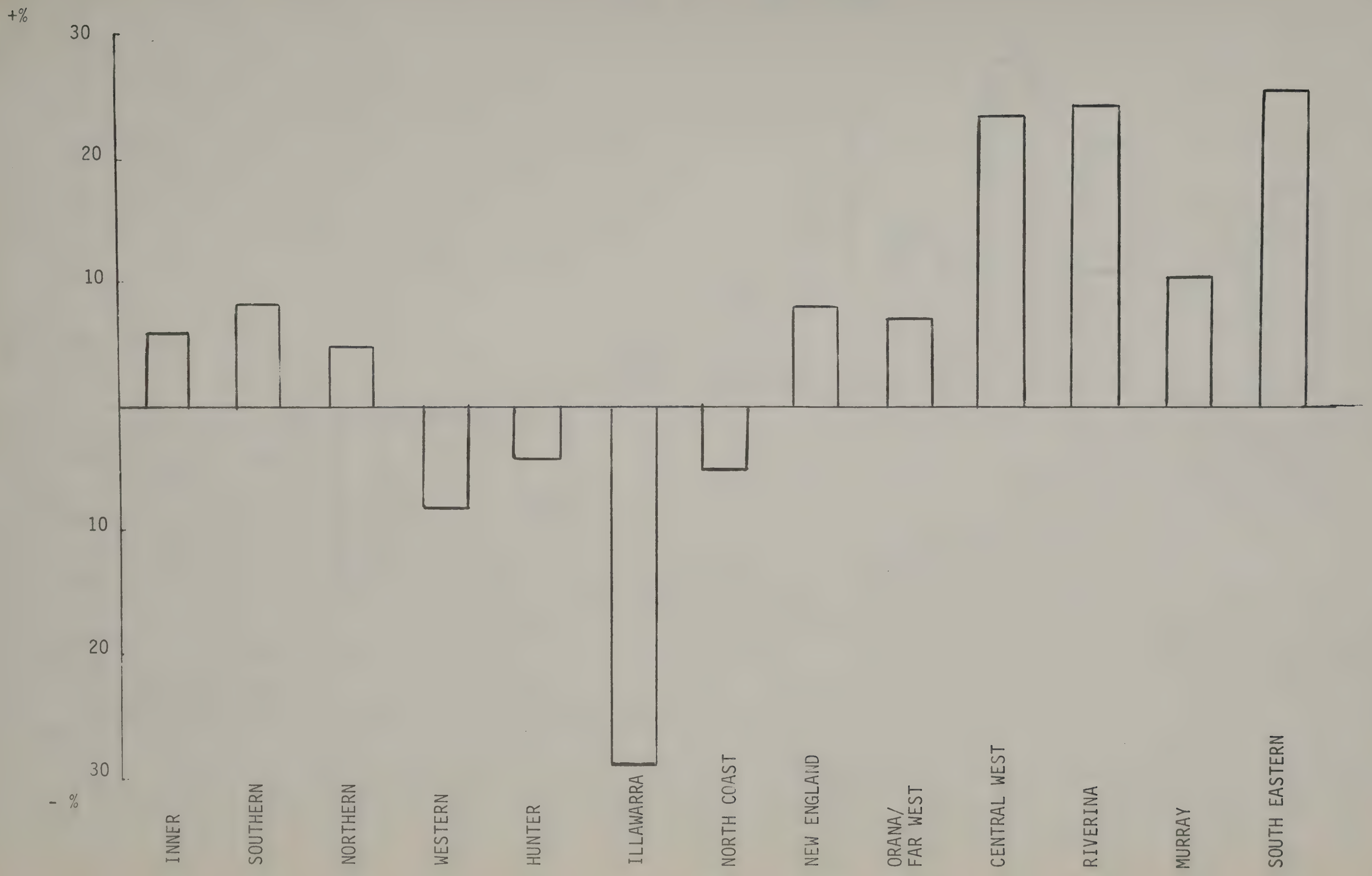
GRAPH 1 : PERCENTAGE DIFFERENCE BETWEEN ACTUAL 1975/76 ALLOCATION AND PER CAPITA UTILISATION ADJUSTED ALLOCATION - SCHEDULE 2 and 3 HOSPITALS.



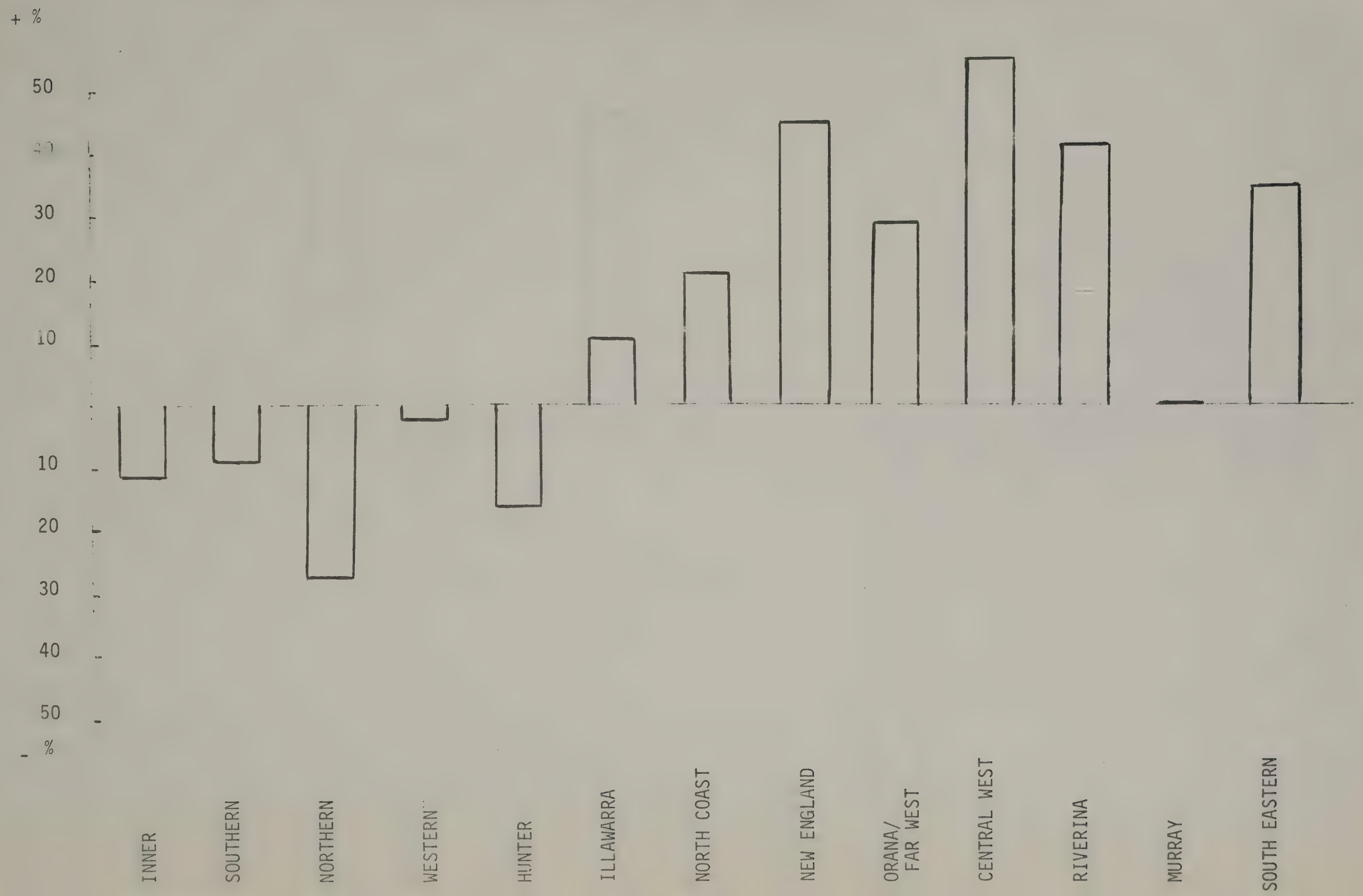
GRAPH 2 : DIFFERENCE BETWEEN ACTUAL 1975/76 ALLOCATION AND PER CAPITA UTILISATION ADJUSTED ALLOCATION - SCHEDULE 5 HOSPITALS - $ MILLION.



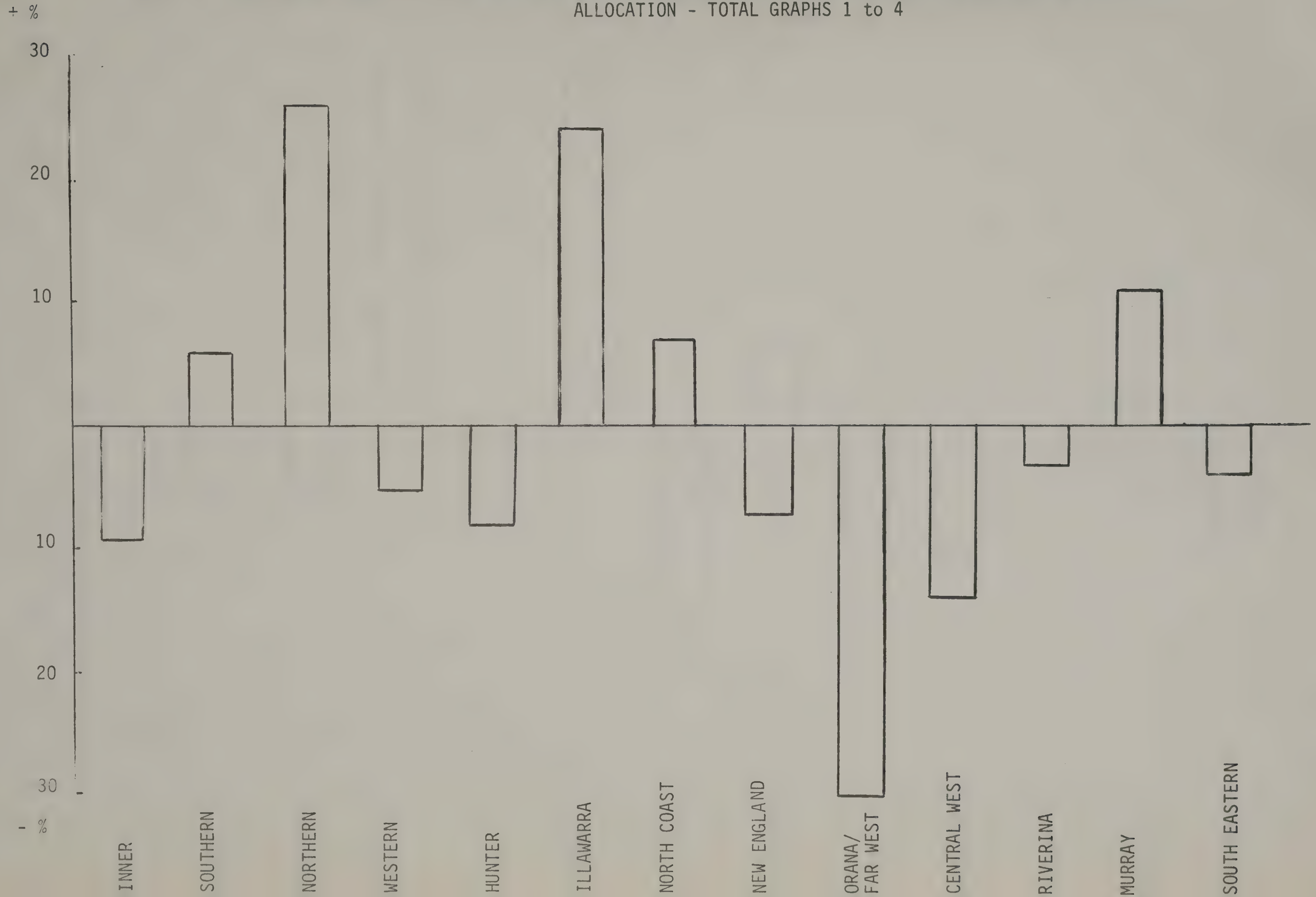
GRAPH 3 : PERCENTAGE DIFFERENCE BETWEEN ACTUAL 1975/76 ALLOCATION AND PER CAPITA UTILISATION ADJUSTED ALLOCATION - COMMUNITY HEALTH.



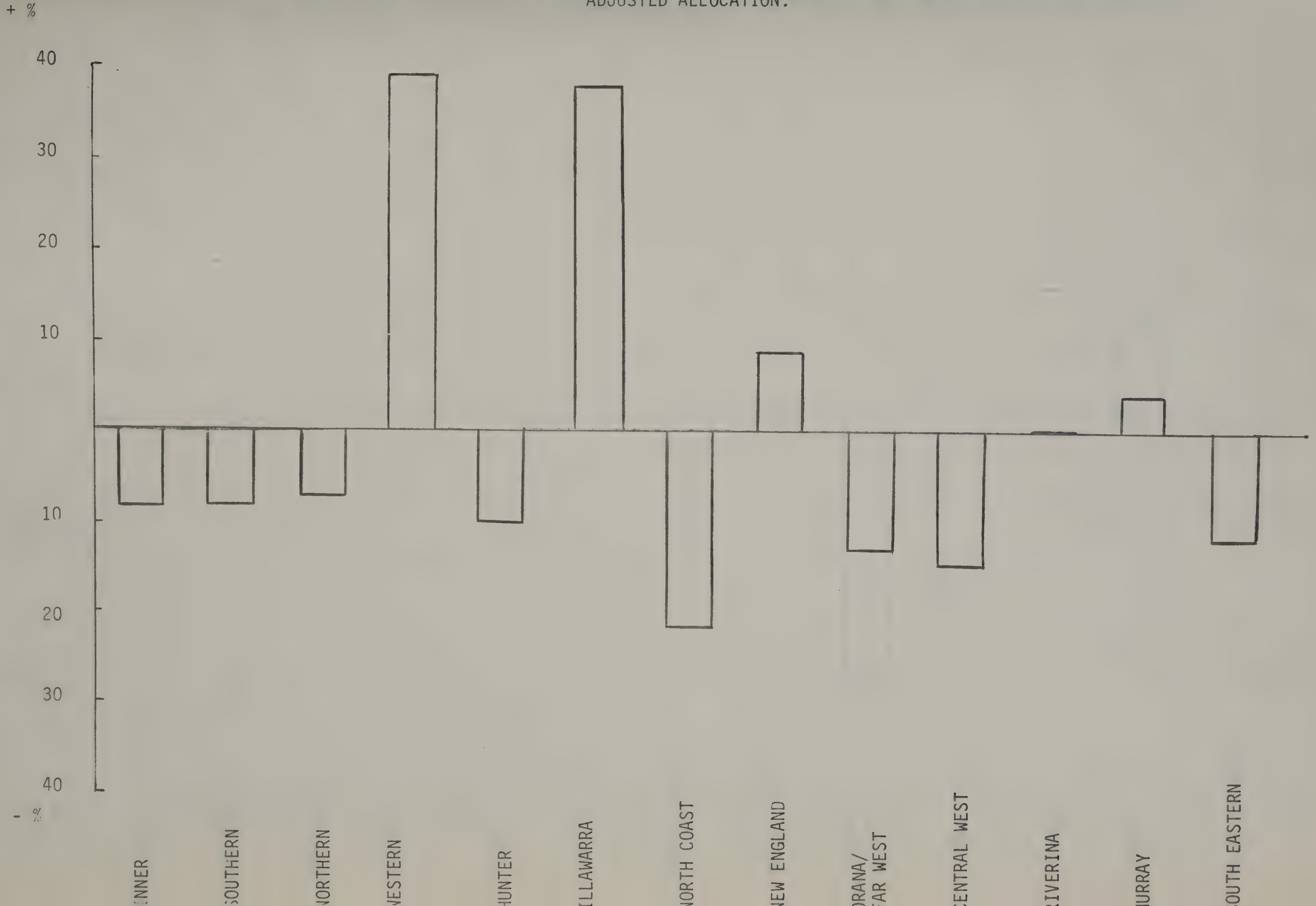
GRAPH 4 : PERCENTAGE DIFFERENCE BETWEEN ACTUAL 1975-76 ALLOCATION AND PER CAPITA ALLOCATION - ADMINISTRATION.



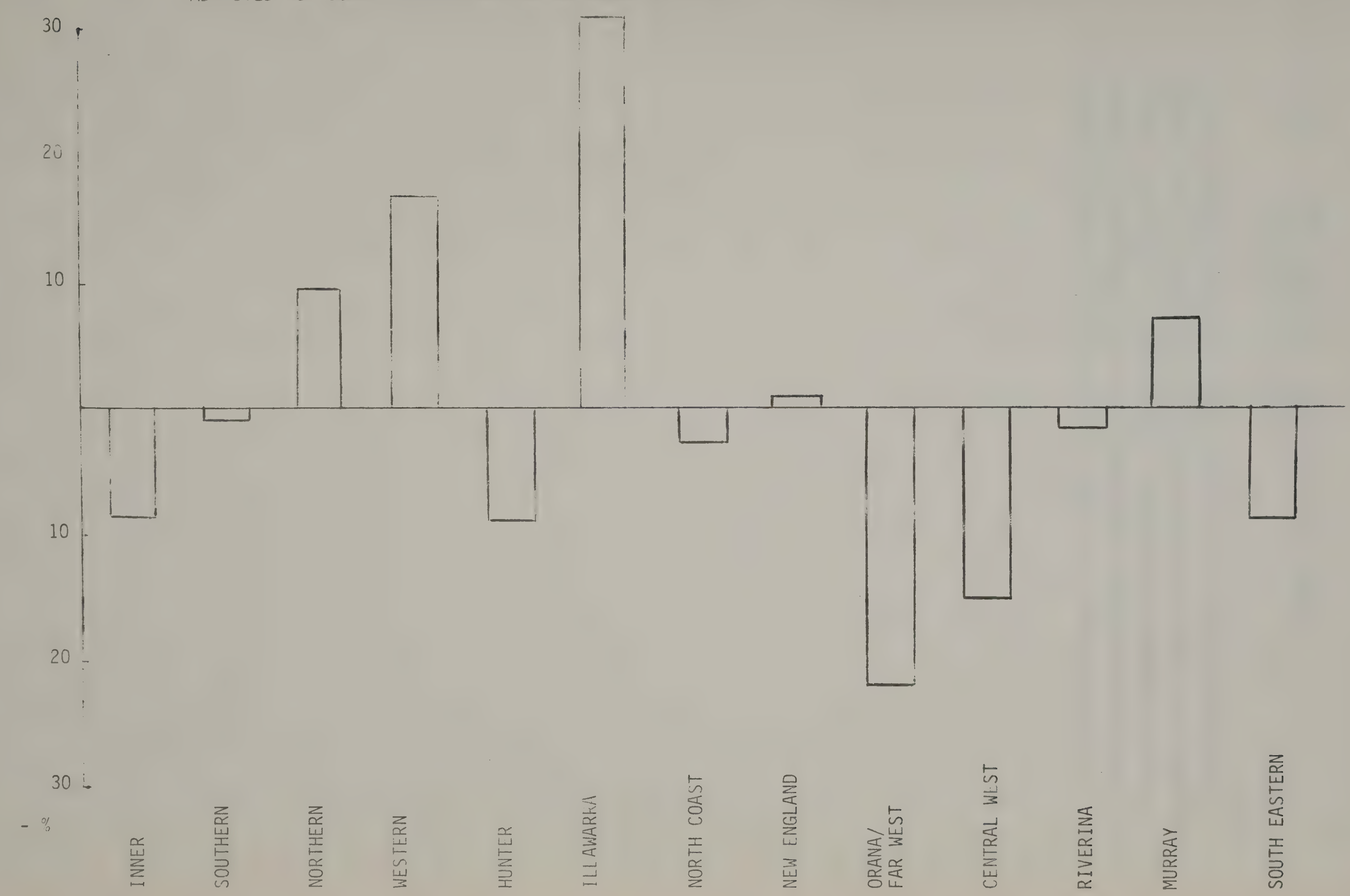
GRAPH 5 : PERCENTAGE DIFFERENCE BETWEEN ACTUAL 1975-76 ALLOCATION AND PER CAPITA UTILISATION ADJUSTED ALLOCATION - TOTAL GRAPHS 1 to 4



GRAPH 6 : PERCENTAGE DIFFERENCE BETWEEN ACTUAL 1975-76 ALLOCATION AND PER CAPITA NEED ADJUSTED ALLOCATION.



GRAPH 7 : PERCENTAGE DIFFERENCE BETWEEN ACTUAL 1975/76 ALLOCATION AND ALLOCATION ON PER CAPITA BASIS ADJUSTED FOR COMBINED UTILISATION AND NEED FACTORS.



SECTION 3 : SOME ALTERNATIVES TO THE SELECTED FORMULA AND ISSUES FOR DISCUSSION

This section describes the various alternatives to the allocation and raises issues for discussion. Briefly, alternatives and issues canvassed include such factors as health needs, average cost allocation, private hospitals and nursing homes, health personnel, nursing education and training, urban/rural differences and weights for different factors.

3.1 Health Needs

The formula described in the previous section measures need on the basis of age and sex standardised mortality statistics with particular weighting given to infant mortality. This measure of need to allocate resources has been promulgated in the United Kingdom in a recent report "Sharing Resources for Health in England" - the report claims that allocating funds on the basis of demand only sometimes reflects real needs and may even distract from them because of both misdirected technological advances and the fact that the supply of health care "actually fuels further demand".

There are however other measures of need which may be used to indicate community need for health services. At the request of the Social Welfare Commission which under the former Federal Government was concerned with the development of the A.A.P., Vinson and Homel have developed a need index which incorporates a wide range of factors. The factors included in the index are:

Persons tried at Higher Courts
Appearances at Petty Sessions
Child care and protection orders
Juvenile appearances
Unemployment
Long term prisoners
Pedestrian injuries and fatalities
Children assessed as Q_3
First admissions to mental hospitals
Permanently separated/divorced
Emergency cash assistance
Index of male mortality
Non-attendance at primary schools
Suicide
Petty Sessions appearances with previous conviction.
Higher Court trials with previous conviction.
Income
556A dismissal/recognizance
Mean blood alcohol level of drink/drivers
Perinatal mortality
Schooling
Legal representation
Pupils in special activity classes
Reported hepatitis
Petitions for divorce

One major problem with such an index, however, is that rather than reflections of true need many of the factors may be reflections of such things as law enforcement, utilisation of services and comprehensiveness of statistical collections. Additionally the needs of a region which scores low on this index may be other than health needs as many of the indicators are not directly related to health. Despite these reservations the application of such an index both for allocating funds to the health regions and for regional offices in allocating funds within the region could be the subject of more detailed examination.

3.2 Average Cost Allocation

While the Commission specifically requested that this discussion paper be concerned with a formula based on a per capita basis, there are other methods by which funds could be distributed amongst the regions. One such alternative is an allocation based on an average cost factor whereby the existing location of hospitals and other services is taken as unalterable but the cost of these services is controllable. Schedule 2 and 3 hospitals in the State would be grouped by Teaching/Non Teaching and by A.D.A. size. The average cost per occupied bed day for each of these groupings would be determined and money would be allocated to hospitals at the average cost of the grouping to which they belong. Similarly for Schedule 5 institutions funds could be distributed at an average cost per person in residence. Such a method of resource distribution might influence the expenditure patterns of individual institutions. Providing funds for institutional care by this method, to a region rather than directly to the institution may not force inefficient institutions to improve efficiency. The inefficiency of one hospital in a region could be borne by the efficiency of another. Additionally such a method in the absence of any other criteria for fund allocation ossifies the existing mal-distribution of health services throughout the State and may encourage efficient hospitals to spend more to absorb the difference between the average and their below-average costs.

In Table 3.1 Schedule 2 and 3 hospitals have been grouped according to both bed size and A.D.A. size by region and an average maintenance cost per occupied bed day is shown for each cell. The information has been derived from the 1974/75 "Statistical and Financial Data - Public Hospitals". Hospitals in Category 1 are those classified in

TABLE 3.1 : AVERAGE COST OF SCHEDULE 2 & 3 HOSPITALS BY BED SIZE, 1974/75

CATEGORY 1

	REGIONS														STATE
BED SIZE	INNER M	NORTH M	SOUTH M	WEST M	HUNTER	ILLAWAR	NTH CST	NEW ENG	CEN WES	STH EAS	RIVERINA	MURRAY	ORANA	FAR WEST	
0- 24	.00	57.14	.00	.00	42.44	46.19	47.94	25.29	48.62	40.66	35.98	41.68	46.04	60.48	44.02
25- 49	44.07	50.71	60.08	34.50	43.58	.00	43.62	40.04	42.58	45.73	43.13	43.77	44.16	38.95	43.88
50- 99	29.54	49.07	51.29	.00	42.38	46.04	43.50	40.11	46.62	43.87	42.96	46.91	43.60	.00	44.20
100-149	57.00	29.95	56.25	51.87	52.69	46.77	43.16	48.82	54.56	48.33	48.80	48.28	.00	.00	49.96
150-199	.00	64.80	.00	.00	37.51	56.68	47.92	53.98	37.83	58.62	.00	47.45	57.52	.00	50.51
200+	59.56	56.30	71.77	58.58	58.73	50.42	50.22	56.10	53.38	.00	52.40	.00	.00	51.26	57.91
A D A															
1- 19	44.07	57.14	60.08	.00	45.17	46.19	48.25	38.28	47.83	47.80	38.37	41.75	46.29	60.48	45.23
20- 39	.00	48.06	51.29	34.50	38.68	46.04	42.07	30.08	41.07	42.04	46.69	44.47	43.94	38.95	42.30
40- 69	29.54	52.38	.00	.00	48.52	.00	41.88	43.63	.00	41.10	43.42	43.56	42.83	.00	43.96
70- 99	28.59	31.00	45.49	48.33	44.70	48.31	45.70	47.94	50.23	44.83	44.93	49.27	.00	.00	44.89
100-149	62.68	27.87	77.76	53.71	47.33	46.00	44.34	53.98	55.24	58.62	52.03	.00	.00	.00	52.80
150-199	43.14	64.80	78.06	49.91	48.58	56.68	51.20	.00	45.60	.00	.00	47.45	57.52	.00	52.25
200+	70.51	56.30	65.49	58.58	68.88	50.42	50.22	56.10	.00	.00	52.40	.00	.00	51.26	59.33
CATEGORY 2	23.06	14.80	25.29	24.66	14.57	19.01	12.82	.00	16.24	17.99	.00	.00	24.52	14.24	19.57
TEACHING	95.78	84.00	92.64	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	93.13

the above publication as "Medical, Surgical and Obstetrics" while Category 2 are "Other Institutions including Convalescent Hospitals, Homes etc.". Data on Teaching Hospitals are shown separately. The State average bed day cost is shown for each grouping on the far right of the print-out.

While no attempt has been made to re-allocate Schedule 2 and 3 expenditure on this basis, it appears that no region (with the exception of the Southern Metropolitan Region) has hospitals whose average bed day costs are uniformly greater or less than the State average.

However, grouping hospitals solely on a bed size basis is too simplistic. There is a need for a predictive model of hospital costs to be developed which would incorporate for example, bed size, provision of specialised services, teaching and research and location.

3.3 Private Hospitals, Nursing Homes

In the selected formula, no account is taken of health services provided by private hospitals, public and private nursing homes, general practice and other services provided by the private sector. Equally strong arguments could be made for their inclusion or exclusion from the formula. For example with respect to private institutions their inclusions in the formula could be seen as discriminatory against the lower income groups in regions with an above average number of private beds. By the same token, there is little doubt that the Northern and Southern Metropolitan Regions with a large number of nursing homes and private hospital beds are favoured by their exclusion from the formula.

To a degree the attitude in relation to private institutions depends on whether the role of the Health Commission is to provide health services in the absence of private enterprise or regardless of it.

When private hospitals are included in the hospital morbidity collection detailed information will be available on bed days provided by this sector and the place of residence of persons receiving private hospital care. With this information, the extent of bias introduced by their exclusion from the formula can be determined, but we will still be short on data to deal with nursing homes and other services in the private sector.

Table 3.2 which shows the distribution of private hospital beds as at 30 June 1976 reveals the relative heavy per capita concentration in the Inner, Northern and Southern Metropolitan Regions and the Hunter Region.

TABLE 3.2 : NUMBER OF PRIVATE HOSPITAL BEDS: 30 JUNE 1976

Region	No. of Beds	No. of Cots.	Per 1,000 Pop.
Inner Met.	856	149	2.0
Northern Met.	1,459	92	1.9
Western Met.	572	131	0.7
Southern Met.	809	30	1.2
North Coast	29	2	0.1
New England	103	-	0.6
Orana	46	-	0.5
Far West	-	-	-
Murray	-	-	-
Riverina	-	-	-
Central West	58	11	0.5
South Eastern	-	-	-
Hunter	401	12	1.0
Illawarra	159	2	0.6
STATE TOTAL	4,921		1.0

The costs involved in operating private hospitals in New South Wales are difficult to ascertain with any degree of certainty. Assuming an occupancy rate of 81 percent (Inner Metropolitan Hospital Services Planning Study) and an average cost of $75 inclusive of profit margin per bed day (Hospitals Contribution Fund of Australia), Table 3.3 gives some idea, although only crudely, of the maintenance expenditure generated by the private hospital sector.

TABLE 3.3 : ESTIMATED MAINTENANCE EXPENDITURE OF PRIVATE HOSPITALS: 1975/76

Region	Estimated No. Bed Days 000's	Estimated Total Cost $75 per Bed Day $'000
Inner Met.	312	23,385
Northern Met.	481	36,090
Western Met.	218	16,358
Southern Met.	260	19,523
North Coast	10	721
New England	32	2,397
Orana	14	1,070
Far West	-	-
Murray	-	-
Riverina	-	-
Central West	21	1,606
South Eastern	-	-
Hunter	128	9,610
Illawarra	50	3,746
STATE TOTAL	1,527	114,506

However, Table 3.3 should be interpreted with caution as no account is taken of interstate and inter-regional patient flows nor are any deductions made for profit margins.

Nursing home beds are also clustered in the metropolitan and Hunter regions (Table 3.4) although the recent Survey of Nursing Homes conducted by the Division of Health Services Research revealed substantial inter-regional flow of patients (Table 3.5). For example as few as 62 percent of patients resident in nursing homes in the Western Metropolitan Region gave that region as their place of last address. Should the responsibility for payments of ordinary and supplementary nursing home benefits and capital costs revert from the Federal Government to the State, such payments could be incorporated in the formula.

TABLE 3.4 : NUMBER OF NURSING HOME BEDS: 30 JUNE 1976

Region	No. of Beds	No. of Cots	Per 1,000 Pop.
Inner Met.	4,494		8.7
Northern Met.	5,033	104	7.5
Western Met.	4,616	141	4.4
Southern Met.	3,636		5.3
North Coast	556		2.4
New England	266		1.6
Orana	40		0.4
Far West	51		1.6
Murray	88		1.0
Riverina	160		1.2
Central West	262		1.7
South Eastern	156		1.3
Hunter	939		2.2
Illawarra	447	12	1.7
STATE TOTAL	21,001		4.4

3.4 Health Personnel

One criterion which could be used to apportion funds - in particular community health funds - would be on the basis of the distribution of health personnel engaged in private practice. Accordingly those regions with the least number of health personnel engaged in private practice would receive the greatest amount of community health funds. Once details of occupations/qualifications became available from the 1976 Census (which are considerably expanded on previous Censuses) the existing distribution of health personnel will be better known.

TABLE 3.5 : LOCATION OF NURSING HOMES AND PLACE OF ORIGIN OF PATIENT
SURVEY OF NURSING HOMES 1976

REGION OF NURSING HOME

REGION OF LAST ADDRESS		TOTAL	INNERMET	NORTHMET	WEST MET	SOUTHMET	NORTHCST	NEW ENGL	ORANA	FAR WEST	MURRAY	RIVERINA	CENTWEST	SOUTHEAS	HUNTER	ILLAWARR
TOTAL	PERCENTAGE	100.0	19.0	23.8	21.3	17.5	2.4	1.2	.7	.3	.0	.6	1.9	1.4	7.8	2.1
	FREQUENCY	17100	3248	4073	3643	2984	417	198	120	49	0	109	321	242	1341	355
INNER	PERCENTAGE	18.6	65.9	5.7	10.5	13.1	.2	.5	.8	.0	.0	.0	2.2	.4	1.0	3.1
	FREQUENCY	3181	2140	231	382	392	1	1	1	0	0	0	7	1	14	11
NORTH	PERCENTAGE	21.0	8.7	68.0	10.0	4.3	1.0	1.0	.8	.0	.0	.0	1.6	.8	2.1	.6
	FREQUENCY	3588	284	2768	364	128	4	2	1	0	0	0	5	2	28	2
WEST	PERCENTAGE	18.4	9.9	7.4	62.1	7.0	.5	1.5	1.7	.0	.0	.0	1.6	.8	.2	6.8
	FREQUENCY	3138	323	303	2263	208	2	3	2	0	0	0	5	2	3	24
SOUTH	PERCENTAGE	17.2	10.5	6.8	7.1	68.2	.5	.5	.8	.0	.0	.0	.3	.0	.9	1.7
	FREQUENCY	2935	341	277	258	2036	2	1	1	0	0	0	1	0	12	6
HUNTER	PERCENTAGE	8.1	1.0	1.2	1.1	.6	1.4	1.0	.0	.0	.0	.0	.3	.8	91.5	.0
	FREQUENCY	1379	33	50	39	19	6	2	0	0	0	0	1	2	1227	0
ILLAW	PERCENTAGE	3.3	.4	1.0	2.7	3.7	2.2	.0	.0	.0	.0	.0	.6	1.7	.2	78.0
	FREQUENCY	561	14	42	99	111	9	0	0	0	0	0	2	4	3	277
NTH CST	PERCENTAGE	3.0	.6	1.3	.9	.4	87.3	3.0	.0	.0	.0	.0	.0	1.2	2.1	.6
	FREQUENCY	516	18	51	31	13	364	6	0	0	0	0	0	3	28	2
NEW ENG	PERCENTAGE	1.7	.1	1.7	.4	.2	.2	90.4	.0	.0	.0	.0	.9	.0	.7	.0
	FREQUENCY	284	4	68	13	6	1	179	0	0	0	0	3	0	10	0
ORANA	PERCENTAGE	1.3	.3	1.3	.6	.4	.5	.0	81.7	2.0	.0	.9	5.6	.0	.2	.6
	FREQUENCY	218	9	52	21	11	2	0	98	1	0	1	18	0	3	2
CENTWES	PERCENTAGE	2.6	.4	1.4	1.8	.2	.0	.0	9.2	2.0	.0	1.8	81.9	5.0	.2	.6
	FREQUENCY	438	14	58	66	7	0	0	11	1	0	2	263	12	2	2
SOUTHEA	PERCENTAGE	1.6	.4	1.0	.8	.4	.2	.0	.0	.0	.0	4.6	3.4	60.7	.2	5.6
	FREQUENCY	281	13	39	30	13	1	0	0	0	0	5	11	147	2	20
RIVERINA	PERCENTAGE	1.2	.4	.9	.5	.1	.0	.0	1.7	.0	.0	84.4	.6	10.7	.0	2.3
	FREQUENCY	201	12	38	17	4	0	0	2	0	0	92	2	26	0	8
MURRAY	PERCENTAGE	.2	.1	.3	.1	.1	.2	.0	.8	.0	.0	5.5	.3	3.7	.0	.0
	FREQUENCY	38	3	11	2	4	1	0	1	0	0	6	1	9	0	0
FARWEST	PERCENTAGE	.3	.1	.1	.1	.0	.0	.0	.0	93.9	.0	.0	.0	.0	.0	.0
	FREQUENCY	57	2	5	4	0	0	0	0	46	0	0	0	0	0	0
BLANK	PERCENTAGE	.5	.7	.3	.5	.3	1.9	1.0	1.7	2.0	.0	.9	.3	1.2	.2	.0
	FREQUENCY	83	22	12	19	9	8	2	2	1	0	1	1	3	3	0
OTHER	PERCENTAGE	1.2	.5	1.7	1.0	.8	3.8	1.0	.8	.0	.0	1.8	.3	12.8	.4	.3
	FREQUENCY	202	16	68	35	23	16	2	1	0	0	2	1	31	6	1

3.5 Nursing Education and Training

The formula attempted to take into account amounts expended by the Health Commission in relation to the training of medical practitioners. No account was taken, however, of the training of nursing personnel.

The effect of this exclusion is thought to be minor for two reasons.

1. Because of the apprentice type training it is uncertain whether there is a cost factor associated with training over and above the benefits received in terms of work performed.
2. The 330+ nursing programs which satisfy registration requirements are far more evenly distributed geographically in comparison to medical training and hence their costs are borne more equally among regions.

3.6 Urban/Rural Variations

One criticism which could be levelled at the formula is that it fails to recognise and hence take account of inherent differences in health services between urban and rural regions. Such factors include, for example,

1. the necessity for a greater number of hospital beds associated with a lower occupancy rate in rural regions,
2. different patterns of hospital care in rural regions reflected particularly in high admission rates and marginally greater average length of stay - the latter predominantly caused by a significant number of long-term nursing home type patients,
3. the geographic differences between urban and rural regions which may cause, for example, higher administrative costs in the former regions.

However, as the results of the estimates made based on the formula appear to discriminate neither uniformly for nor against rural or urban regions, any bias introduced may be minimal.

3.7 Ambulance Services

With the integration of ambulance services within the Health Commission, future application of the formula could incorporate the allocation of ambulance funds among the regions.

3.8 Weights

The per capita allocation formula outlined and applied in previous sections of this paper made implicit value judgements on the relative value of individual factors. Accordingly, equal value was given to total and infant deaths, by using an arithmetic average of the two factors. Similarly, the "need" factor based on mortality was given equal weighting to the "utilisation" factor.

It is obvious that these value judgements can be questioned, and alternative weights may be suggested for each single factor. One basic merit of the formula is that it can accommodate changes in the weights given to each factor, that may be arrived at as the result of further discussion and other value judgements.

APPENDIX

TABLE A.1 : POPULATION OF REGIONS - 1976 CENSUS PRELIMINARY RESULTS.

REGION	Males	Females	Persons
Inner	240738	244207	484945
Northern	381899	407975	789874
Southern	320905	335903	656808
Western	547366	542306	1089672
North Coast	125161	125886	251047
Hunter	209328	210004	419332
Illawarra	137437	132051	269488
New England	85112	82878	167990
Orana	50764	48225	98989
Central West	78420	77030	155450
South Eastern	65532	62373	127905
Riverina	68708	66016	134724
Murray	46397	44577	90974
Far West	16624	15758	32382
State Total	2374391	2395189	4769580

TABLE A.2 : EXPENDITURE SUMMARY 1975/76.

REGION	Maintenance				Total
	Administration	2nd, 3rd Schedule	5th Schedule	Community Health	
	$	$	$	$	
Inner	1,568,712	157,963,561	21,430,585	1,730,671	182,693,529
Southern	2,405,146	89,094,136	5,236,545	1,713,621	98,449,448
Northern	3,184,119	87,286,528	9,453,462	2,037,135	101,961,244
Western	2,942,723	66,745,877	30,367,858	4,443,127	104,499,585
Hunter	1,681,601	59,287,092	20,275,294	1,321,102	82,565,089
Illawarra	1,053,976	23,682,584	300,686	1,359,114	26,396,360
North Coast	823,699	33,470,044	-	850,247	35,143,990
New England	586,371	22,568,501	-	518,987	23,673,859
Orana/Far West	537,403	22,277,088	-	399,043	23,213,534
Central West	508,341	22,736,741	5,573,278	398,509	29,216,869
Riverina	527,303	18,037,509	-	303,228	18,868,040
Murray	356,885	11,680,600	-	326,280	12,363,765
South Eastern	429,686	17,188,878	5,142,750	355,432	23,116,745
Total State	16,605,965	632,019,139	97,780,458	15,756,496	761,162,058

1. Administration - as per Accounts Branch computer records of 30.6.76
2. Maintenance (2nd, 3rd Sched) - Net operating payments as per audited results 1.7.75 - 30.9.76 and computer records 1.10.75 - 24.6.76.
3. Maintenance (5th Sched. & Comm. Health) - as per Accounts Branch computer records of 30.6.76

TABLE A.3 NUMBER OF SCHEDULE 2 & 3 BED DAYS AGE/SEX GROUPS. (000s).

Age/Sex	Males	Females	TOTAL
0-4	133	103	236
5-14	73	55	129
15-44	239	642	882
45-64	340	322	662
65+	474	642	1116
All Ages	1259	1766	3025

* Source : Hospital Morbidity Statistics

TABLE A.4 NUMBER OF SCHEDULE 2 & 3 BED DAYS X AGE/SEX GROUPS-MORBIDITY DATA EXPANDED TO STATE ESTIMATE. (000s).

Age/Sex	Males	Females	TOTAL
0-4	329	256	585
5-14	182	137	319
15-44	594	1592	2186
45-64	843	799	1642
65+	1175	1592	2768
All Ages	3123	4378	7501

TABLE A.5 N.S.W. POPULATION ESTIMATES 1975

Age/Sex	Male	Female	TOTAL
0-4	224820	214230	439050
5-14	424240	407560	831800
0-19	862990	825360	1688350
15-24	419480	398840	818320
15-44	1083130	1021330	2104460
20-39	730380	687110	1417490
25-44	663650	622490	1286140
40-54	423620	409170	832790
45-64	493520	500910	994430
55+	379800	471160	850960
65+	171080	248770	419850
Total	2396790	2392800	4789590

Note : This table gives N.S.W. population by overlapping age groups.

TABLE A.6 AVERAGE No. SEPARATIONS PER 1000 POP. PER ANNUM FOR SELECTED X AGE/SEX GROUPINGS.

Age/Sex	Males	Females	TOTAL
0-4	85.99	64.86	75.68
5-14	34.69	28.28	31.55
15-44	30.91	101.72	65.28
45-64	59.87	62.12	61.00
65+	128.88	100.94	112.32
All	49.70	77.54	63.61

TABLE A.7 1975 DERIVED POPULATION X REGIONS BASED ON 1971 CENSUS AGE/SEX DISTRIBUTION.

Age/Sex		Hunter	Illawarra	North Coast	New England	Orana	Central West	South Eastern	Riverina	Murray	Far West	Inner	North	South	West
0-4	M	19815	13246	10769	8893	5584	7568	6141	6989	4644	1556	20938	33000	26544	58435
	F	19088	12675	10365	8412	5262	7212	6023	6823	4498	1517	19889	31292	25456	55401
	T	38903	25921	21134	17305	10846	14780	12164	13812	9142	3074	40826	64292	52000	113836
5-14	M	40710	29153	24888	18542	11066	16744	12912	14723	9904	3327	33459	69466	51720	118312
	F	39003	26894	23681	17451	10643	15940	12226	14074	9466	3152	32292	65404	49663	112218
	T	79713	56047	48570	35992	21708	32685	25138	28797	19370	6479	65750	134869	101383	230530
0-19	M	79766	54591	45688	35336	20686	31406	24352	28734	18489	6328	72332	135055	106062	227002
	F	76382	50710	43961	33175	19669	29443	23369	26771	17582	6015	71366	128757	102937	213484
	T	156147	105301	89649	68510	40355	60849	47719	55505	36071	12343	143698	263812	208999	440486
15-24	M	37726	23679	17275	14992	7722	13072	10767	12923	7493	2888	45371	64554	61741	97534
	F	34847	21528	17135	13669	7161	11787	9842	10758	6679	2690	47218	65061	60491	90782
	T	72572	45207	34410	28662	14883	24859	20609	23681	14172	5578	92589	129616	122231	188316
15-44	M	89535	61091	43220	36956	20908	32672	27136	30243	19033	7061	122703	165995	155500	247511
	F	84806	55765	43112	33922	19000	29898	24490	26621	17112	6412	112057	168280	149275	235549
	T	174341	116856	86331	70878	39908	62570	51626	56864	36145	13473	234760	334275	304775	483060
20-39	M	57008	39610	26399	23848	13605	20852	17920	19020	12141	4537	87360	108264	105399	161407
	F	53633	36411	26567	21893	21520	19276	15900	17082	10878	4096	78225	110426	99385	155676
	T	110642	76020	52966	45741	26125	40128	33820	36102	23019	8631	165585	218690	204784	317084
25-44	M	51810	37412	25945	21963	13187	19600	16369	17320	11541	4173	77332	101441	93760	149977
	F	49959	34237	25977	20253	11839	18111	14649	15863	10432	3722	64839	103219	88784	144765
	T	101769	71649	51921	42216	25026	37711	31018	33183	21973	7895	142171	204660	182544	294744
45-64	M	44299	25997	25799	15613	9394	15094	12399	12200	8887	3489	58377	84214	78739	96765
	F	44162	24351	25819	14867	8734	14818	11792	11631	8371	3281	58241	94451	83909	92625
	T	88462	50348	51618	30480	18128	29912	24190	23831	17258	6770	116619	178665	162648	189390
40-54	M	38407	24761	20265	13768	8415	13044	10850	11135	7955	2974	49669	72885	66776	58930
	F	37213	22147	20055	12889	7440	12480	9979	10205	7372	2713	45125	77086	68239	68658
	T	75620	46908	40320	26656	15854	25524	20829	21340	15327	5687	94794	149971	135015	127588
55+	M	34821	18098	23812	12531	7834	12558	10121	9675	7107	2723	47767	69595	59811	97033
	F	40200	19642	25213	13341	7741	13571	10710	10358	7396	2894	62195	96281	79161	91870
	T	75021	37740	49026	25872	15576	26130	20831	20034	14502	5617	109962	165876	138972	188902
65+	M	15642	7573	14488	5479	3588	5782	4655	4409	3224	1128	21651	33125	25544	23348
	F	20369	9225	12819	6646	3732	6902	5427	5267	3783	1357	34433	53123	41418	33893
	T	36011	16799	24307	12125	7320	12683	10081	9676	7006	2485	56084	86248	66964	57241

Minor errors in totals due to rounding.

TABLE A.8 ESTIMATED POPULATION '75 X REGION.

Region	No.	%
Inner Metrop.	514040	10.7
Northern Metrop.	798350	16.7
Southern Metrop.	687770	14.4
Western Metrop.	1074060	22.4
Hunter	417430	8.7
Illawarra	265970	5.6
North Coast	231960	4.8
New England	166780	3.5
Orana	97910	2.0
Central West	152630	3.2
South Eastern	123200	2.6
Riverina	132980	2.8
Murray	88920	1.9
Far Western	32280	0.7
STATE TOTAL	4784280	100.0

Source: Australian Bureau of Statistics.

TABLE A.9 DESIRED NUMBER OF PATIENT BED DAYS FOR REGIONS BY AGE/SEX GROUPS SCHEDULE 2 & 3 HOSPITALS (000s).

AGE		Hunter	Illawarra	North Coast	New England	Orana	Central Western	South Eastern	Riverina	Murray	Far West	Inner	North	South	West	TOTAL
0 - 4	M	29	19	16	13	8	11	9	10	7	2	31	48	39	85	
	F	23	15	12	10	6	9	7	8	5	2	24	38	31	66	
	T	52	34	28	23	14	20	16	18	12	4	54	86	69	151	381
5 - 14	M	18	13	11	8	5	7	6	6	4	1	14	30	22	51	
	F	13	9	8	6	4	5	4	5	3	1	11	22	17	38	
	T	30	21	18	14	8	12	10	11	7	2	25	51	39	88	356
15 - 44	M	49	34	24	20	11	18	15	17	10	4	67	91	86	136	
	F	132	87	67	53	30	47	38	42	27	10	175	263	233	367	
	T	181	122	90	74	42	65	54	59	38	14	244	348	317	502	2148
45 - 64	M	76	44	44	27	16	26	21	21	15	6	100	144	135	165	
	F	71	39	41	24	14	24	19	19	13	5	93	151	134	148	
	T	146	83	85	50	30	49	40	39	28	11	192	295	268	312	1631
65+	M	107	52	79	38	25	40	32	30	22	8	149	228	175	160	
	F	130	59	82	43	24	44	35	34	24	9	220	340	265	217	
	T	237	111	160	80	48	84	66	64	46	16	370	568	441	377	2669
TOTAL		647	371	381	241	142	230	186	192	132	48	8885	1348	1134	1430	7365

Minor errors in totals due to rounding.

TABLE A.10 ADMISSIONS AND "IN RESIDENCE" OF SCHEDULE 5 HOSPITALS - MONTH JUNE 1976

HOSPITAL	No. of admission (1)	No. In Residence as at 30.6.76 (2)	% of 1 to 2
Inner			
Rozelle Hospital	327	679	
Gladesville	85	658	
Grosvenor	15	119	
Total	427	1455	29
Southern			
Garrawarra	15	272	
Randwick	43	58	
Strickland	1	69	
Total	59	399	14
Northern			
North Ryde	124	332	
Peat Island	12	166	
Total	136	498	27
Western			
Lidcombe	241	645	
Marsden	12	424	
Parramatta	167	589	
Rydalmere	94	534	
Total	514	2192	23
Hunter			
Allandale	24	513	
Morisset	83	689	
Newcastle	131	113	
Stockton	8	833	
Tomaree	-	59	
Total	246	2207	11
Illawarra			
David Berry	25	14	178
Central West			
Bloomfield	63	704	8
South Eastern			
Kenmore	27	657	4
STATE TOTAL	1497	8127(1)	18

(1) Total slightly at variance with total in Table A.24 since data extracted from different sources and relates to different time period.

TABLE A.11 NUMBER OF ADMISSIONS TO PSYCHIATRIC INSTITUTIONS 1973/74.

Age	Male	Female	All
0-19	1054	1152	2206
20-39	4883	4284	9167
40-54	4043	2973	7016
55+	2575	2573	5148
ALL	12555	10982	23537

Source: Table 32 "Inpatients Statistics of Psychiatric Hospitals 1973-1974."

TABLE A.12 DERIVED NUMBER OF ADMISSIONS TO SCHEDULE 5 INSTITUTIONS BY REGION BY AGE/SEX GROUPINGS.

ge/Sex		Hunter	Illawarra	North Coast	New England	Orana	Central West	South Eastern	Riverina	Murray	Far West	Inner	Northern	Southern	Western	TOTAL
0-19	M	97	67	56	43	25	38	30	35	23	8	88	165	129	277	1081
	F	107	71	62	46	28	41	33	37	25	8	100	180	144	299	1181
	T	205	138	117	90	53	80	63	73	47	16	188	346	274	577	2267
20-39	M	381	265	177	160	91	140	120	127	81	30	584	724	705	1080	4665
	F	334	227	166	136	78	120	99	106	68	26	487	688	619	970	4124
	T	716	492	343	296	169	260	219	234	149	56	1071	1415	1325	2052	8798
40-54	M	366	236	193	131	80	124	104	106	76	28	474	695	637	562	3812
	F	271	161	146	94	54	91	73	74	54	20	328	560	496	499	2921
	T	637	395	339	224	134	215	175	180	129	48	798	1263	1137	1074	6748
55+	M	236	123	161	85	53	85	69	66	48	18	324	472	406	658	2804
	F	220	107	138	73	42	74	58	57	40	16	340	526	432	502	2625
	T	454	228	297	157	94	158	126	121	88	34	665	1004	841	1143	5410
TOTAL		2012	1253	1097	767	450	713	583	608	413	154	2722	4028	3577	4846	23223

Minor errors in totals due to rounding.

TABLE A.13 ESTIMATE OF SEX RATIOS FOR COMMUNITY HEALTH REGISTRATIONS

REGION	Females (%)	Males (%)
Northern	54	46
Illawarra	66	34
Hunter	65	35
North Coast	68	32
Central West	62	38
Orana & Far West	65	35
Riverina	65	35
Southern	63	37
Average	63.5	36.5

TABLE A.14 ESTIMATE OF AGE STRUCTURE OF COMMUNITY HEALTH REGISTRATIONS (Percentage)

REGION	0-4	5-14	15-24	25-44	45-64	65+
Northern	2.3	32.7	5.7	17.5	6.6	32.2
Illawarra	6.3	8.9	15.5	44.8	9.7	16.0
Hunter	40.0	20.2	13.2	13.8	2.4	10.1
North Coast	35.9	11.7	15.3	22.0	4.5	11.7
Central West	44.6	8.6	5.0	16.0	5.2	20.0
Orana & Far West	47.8	11.0	6.4	23.5	2.8	9.3
Riverina	10.1	10.4	9.3	33.3	8.0	35.0
Mean Percentage	26.7	14.8	10.1	24.4	5.6	19.2

TABLE A.15 STATE ANNUAL ESTIMATE OF AGE X SEX CHARACTERISTICS OF COMMUNITY HEALTH REGISTRATIONS.

Age	Male		Female		All	
	No.	%	No.	%	No.	%
0-4	38277	9.7	67084	17.0	105361	26.7
5-14	21309	5.4	37093	9.4	58402	14.8
15-24	14601	3.7	25255	6.4	39856	10.1
25-44	35120	8.9	61165	15.5	96285	24.4
45-64	7892	2.0	14206	3.6	22098	5.6
65+	27623	7.0	48143	12.2	75766	19.2
All Ages	144822		252946		397768	

Minor errors in totals due to rounding.

TABLE A.16 DERIVED NUMBER OF COMMUNITY HEALTH REGISTRATIONS BY REGION BY AGE/SEX GROUPS.

Age/Sex		Hunter	Illawarra	North Coast	New England	Orana	Central West	South Eastern	Riverina	Murray	Far West	Inner	Northern	Southern	Western	TOTAL
0-4	M	3374	2256	1834	1515	951	1289	1046	1190	791	265	3566	5620	4520	9952	38169
	F	5977	3968	3245	2634	1647	2258	1886	2136	1408	475	6227	9798	7970	17346	66975
	T	9337	6221	5072	4153	2603	3547	2919	3315	2194	738	9798	15430	12480	27321	105128
5-14	M	2044	1463	1249	931	556	841	648	739	497	167	1680	3487	2596	5939	22837
	F	3549	2447	2155	1588	968	1451	1113	1281	861	287	2939	5952	4519	10212	39322
	T	5596	3934	3410	2527	1524	2294	1765	2022	1360	455	4616	9468	7117	16183	62271
15-24	M	1313	824	601	522	269	455	375	450	261	101	1579	2247	2149	3394	14540
	F	2206	1363	1085	865	453	746	623	681	423	170	2989	4118	3829	5747	25298
	T	3534	2202	1676	1396	725	1211	1004	1153	690	272	4509	6312	5953	9171	39808
25-44	M	2741	1979	1372	1162	698	1037	867	916	611	221	4091	5366	4960	7934	33955
	F	4911	3366	2553	1991	1164	1780	1440	1559	1026	366	6374	10146	8728	14231	59635
	T	7622	5367	3889	3162	1874	2825	2323	2485	1646	591	10649	15329	13673	22076	93511
45-64	M	709	416	413	250	150	242	198	195	142	56	934	1347	1260	1548	7860
	F	1254	692	733	422	248	421	335	330	238	93	1654	2682	2383	2631	14116
	T	1964	1118	1146	677	402	644	537	529	383	150	2589	3966	3611	4205	21921
65+	M	2526	1223	1855	885	580	934	752	712	521	182	3497	5350	4125	3770	26912
	F	3941	1785	2481	1286	722	1335	1050	1019	732	262	6663	10279	8015	6558	46128
	T	6500	3032	4387	2188	1321	2289	1820	1747	1265	448	10123	15568	12087	10332	73107
TOTAL		34553	21874	19580	14103	8449	12810	10368	11251	7538	2654	42284	66073	54921	89288	395746

* Minor differences due to rounding.

TABLE A.17 SEPARATION OF 'ADMINISTRATION SALARY' INTO HEALTH CARE/NON HEALTH CARE COMPONENTS 1975-76 (2).

REGION	Salaries of Persons involved directly/ indirectly in health care (%)	Salaries of Persons involved in admin/ clerical activities (%)
Inner	70	30
Northern	78	22
Southern	80	20
Western (1)	80	20
Hunter	80	20
Illawarra(1)	78	22
North Coast	78	22
Central West (1)	70	30
Orana & Far West	72	28
South Eastern	56	44
Riverina (1)	70	30
Murray	53	47
New England(1)	72	28

(1) Estimate - Regional Office unable to provide split.

(2) Estimates providedby Regional Offices.

TABLE A.18 ESTIMATE OF NUMBER OF ANNUAL BED DAY BY PATIENT ORIGIN : SCHEDULE 2 & 3 HOSPITALS ÷ 1975

LOCATION OF INSTITUTION.

Patient Origin	Inner	North	South	Western	North Coast	Hunter	Orana Far West	New England	Illawarra	South Eastern	Riverina	Murray	Central West	TOTAL
Inner	552542	55527	74129	31509	4697	1523	408	-	507	-	285	340	-	721467
Northern	164365	792665	43843	7072	4542	6623	815	631	-	1520	388	151	526	1023141
Southern	313197	23434	517716	13248	4542	914	306	-	1639	1053	310	76	1052	877487
Western	263068	91900	80551	831144	4697	1523	1291	-	1639	1520	492	170	2668	1280663
Hunter	7060	7947	9831	-	12182	734292	1528	7962	507	497	78	57	-	781941
Illawarra	5648	4891	7453	4028	413	914	68	631	288842	4122	440	95	1052	318597
North Coast	4942	7234	5471	-	449483	7689	-	1859	-	-	155	19	-	476852
New England	4377	5400	5471	-	7278	3731	1155	329280	-	497	26	6	-	357221
Orana	4942	6623	1348	-	774	533	265205	5472	-	-	362	38	2142	287439
Central West	5083	7947	3092	3044	981	838	5977	-	507	1520	4890	57	361365	395301
South Eastern	4236	2547	4043	2059	103	152	476	-	3844	272367	1759	5120	2668	299374
Riverina	3248	2038	2696	985	413	152	272	-	-	2573	242415	2702	-	257494
Murray	282	408	634	-	103	76	34	631	-	-	5174	155061	-	162403
Far West	282	204	-	-	207	15	45984	-	-	-	233	38	-	46963
Other	79076	9985	36391	2059	25757	2360	16064	4279	507	6695	1708	24993	4284	214158
TOTAL	1412348	1018750	792669	895148	516172	761335	339583	350745	297992	292364	258715	188923	375757	7500501

Note: See text for sources.

TABLE A.19 AVERAGE COST PER OCCUPIED BED DAY (74/75).

SCHEDULE 2 & 3 HOSPITALS 1974/75.

REGION	$
Inner	82.46
Northern	58.20
Southern	82.35
Western	50.19
North Coast	45.63
Hunter	53.23
Orana & Far West	45.64
New England	46.81
Illawarra	49.22
South Eastern	42.89
Riverina	43.46
Murray	47.16

TABLE A.20 ALLOCATION OF SCHEDULE 2 AND 3 EXPENDITURE BY PATIENT ORIGIN . ($'000): 1974/75.

	LOCATION OF INSTITUTION.												
Patient Origin.	Inner	North	South	West	North Coast	Hunter	Orana Far West	New England	Illawarra	South Eastern	Central West	Riverina	Murray	TOTAL
Inner	45563	3232	6105	1581	214	81	19	-	25	-	-	13	16	56849
Northern	13554	46133	3610	355	207	353	37	30	-	65	23	18	7	64392
Southern	25826	1364	42634	665	207	49	14	-	81	45	46	15	4	70950
Western	21693	5349	6633	41715	214	81	59	-	81	65	116	23	8	76037
Hunter	582	463	810	-	556	39086	70	373	25	21	-	4	3	41993
Illawarra	466	285	614	202	19	49	3	30	14217	177	46	21	4	16138
North Coast	408	421	451	-	20510	409	-	87	-	-	-	7	1	22294
New England	361	314	451	-	332	199	53	15414	-	21	-	1	-	17146
Orana	408	385	111	-	35	28	12104	256	-	-	93	17	2	13439
Central West	419	463	255	153	45	45	273	-	25	65	15705	231	3	17682
South Eastern	349	148	333	103	5	8	22	-	189	11682	116	83	236	13274
Riverina	268	119	222	49	19	8	12	-	-	110	-	11432	125	12364
Murray	23	24	52	-	5	4	2	30	-	-	-	244	7151	7535
Far West	23	12	-	-	9	1	2099	-	-	-	-	11	2	2157
Other (1)	6521	581	2997	103	1175	126	733	200	25	287	186	81	1153	14168
TOTAL	116464	59293	65278	44926	23552	40527	15500	16420	14668	12538	16331	12201	8715	446413

(1) Interstate total equals $14,168,000.

TABLE A.21 SCHEDULE 2 & 3 HOSPITALS NET EFFECT INTER REGIONAL PATIENT TRANSFERS $'000 ÷ 1974/75.

	LOCATION OF INSTITUTION.												
Patient Origin	Inner	North	South	West	North Coast	Hunter	Orana Far West	New England	Illawarra	South Eastern	Central West	Riverina	Murray	TOTAL
Inner		-10322	-19722	-20111	- 193	- 501	- 412	- 360	- 441	- 349	- 419	- 254	- 8	-53092
Northern	+ 10322		+ 2247	- 4994	- 214	- 110	- 359	- 285	- 284	- 83	- 440	- 100	- 17	+ 5683
Southern	+ 19722	- 2247		- 5969	- 243	- 761	- 98	- 450	- 533	- 287	- 209	- 208	- 49	+ 8668
Western	+ 20111	+ 4994	+ 5969		+ 214	+ 81	+ 58		- 122	- 38	- 37	- 26	+ 7	+31211
Hunter	+ 501	+ 110	+ 761	- 81	+ 146		+ 41	+ 174	- 24	+ 13	- 44	- 5	- 2	+ 1590
Illawarra	+ 441	+ 284	+ 533	+ 122	+ 18	+ 24	+ 3	+ 29		- 13	+ 21	+ 20	+ 4	+ 1486
North Coast	+ 193	+ 214	+ 243	- 214		- 146	- 44	- 245	- 18	- 4	- 44	- 11	- 4	- 80
New England	+ 360	+ 285	+ 450		+ 245	- 174	- 204		- 29	+ 21		+ 1	- 29	+ 926
Orana/Far West	+ 412	+ 359	+ 98	- 58	+ 44	- 41		+ 204	- 3	- 21	- 179	+ 15	+ 1	+ 831
Central West	+ 419	+ 440	+ 209	+ 37	+ 44	+ 44	+ 179		- 21	- 50		+ 230	+ 2	+ 1533
South Eastern	+ 349	+ 83	+ 287	+ 38	+ 4	- 13	+ 21	- 21	+ 13		+ 50	- 28	+ 236	+ 1019
Riverina	+ 254	+ 100	+ 208	+ 26	+ 11	+ 5	- 15	- 1	- 20	+ 28	- 230		- 120	+ 246
Murray	+ 8	+ 17	+ 49	- 7	+ 4	+ 2	- 1	+ 29	- 4	- 236	- 2	+ 120		- 21
TOTAL±	+53092	-5683	-8668	-31211	+80	-1590	-831	-926	-1486	-1019	-1533	-246	+21	0

TABLE A.22 PER CAPITA UTILISATION WEIGHTED ALLOCATION LESS INTERSTATE PATIENT EXPENDITURE : SCHEDULE 2 & 3 HOSPITALS 1975/76.

Region	Per Capita Utilisation weighted allocation $000's	Less Interstate expenditures $000's
Inner	76581	74864
Northern	123104	120344
Southern	98105	95906
Western	111989	109478
Hunter	55925	54672
Illawarra	32094	31374
North Coast	33013	32273
New England	20809	20343
Orana & Far West	16470	16101
Central West	19900	19454
South Eastern	16067	15707
Riverina	16566	16195
Murray	11395	11140
TOTAL	632019	617851

Minor errors in totals due to rounding.

TABLE A.23 SCHEDULE 5 HOSPITALS : PERCENTAGE DISTRIBUTION OF ADMISSIONS APPLIED TO PATIENTS IN RESIDENCE JUNE 1976.

	Psychiatric Section															*Hospital Section*					
															(4)	(3)	(3)	(3)	(2)	(4)	(1)
Address of Patient	Broughton Hall	Callan Park	Gladesville	Grosvenor	Marsden	Parramatta	Rydalmere	North Ryde	Peat Island	Morisset	Newcastle	Stockton	Bloomfield	Kenmore	Tomaree	David Berry	Garrawarra	Allandale	Lidcombe	Strickland	Randwick
Inner	40	362	371	20	54	16	30	14	..	37	1	78	35	32	..	..	8	..	110	..	5
Northern	2	24	46	7	8	11	4	276	166	227	1	173	7	4	..	..	14	..	13	..	9
Western	7	24	8	55	299	540	488	23	..	23	1	57	27	18	..	..	20	..	497	..	13
Southern	6	176	196	21	29	8	7	6	..	15	1	47	13	9	..	..	161	..	19	69	8
Central West	..	3	..	3	..	2	1	..	..	4	..	20	377	5	..	..	..	..	..	..	2
Hunter	1	8	1	3	4	1	2	3	..	280	99	238	4	3	59	..	..	461	..	..	4
Illawarra	1	4	30	1	21	4	1	2	..	4	..	37	6	100	..	14	79	..	6	..	3
New England	..	4	..	4	..	1	1	1	..	92	1	34	4	1	..	..	..	..	..	..	2
North Coast	1	2	2	1	..	1	1	2	..	30	8	50	1	..	..	..	..	51	..	..	3
Orana & Far West	1	2	..	1	4	1	..	1	..	1	..	20	208	2	..	..	..	..	..	..	2
Riverina	..	1	..	1	..	..	1	..	..	4	..	10	5	60	..	..	..	..	..	..	2
Murray	..	1	..	1	..	..	..	..	..	1	..	10	2	55	..	..	..	..	..	..	1
South Eastern	..	1	1	1	..	1	..	1	..	..	..	24	4	274	..	..	..	..	..	..	2
O/S Other States	1	7	1	1	4	3	2	1	..	9	1	31	12	93	..	..	..	..	..	..	1
Total - in residence 30.6.76.	60	619	656	120	423	589	538	330	166	727	113	829	705	656	59	14	282	512	645	69	58

(1) Apportioned on population basis on advice from Southern Metropolitan Regional Office.
(2) Apportioned on basis of acute section of hospital as reported for Hospital Morbidity.
(3) Apportioned on basis of manually extracted sample of separations as reported for Hospital Morbidity Collection.
(4) Insufficient knowledge from data services to apportion patients between regions.

TABLE A.24 ESTIMATE OF GEOGRAPHIC ORIGIN OF PATIENT IN RESIDENCE : SCHEDULE 5 HOSPITALS - 1976.

	LOCATION OF INSTITUTION								
Address of Patient	Inner	Northern	Western	Southern	Central West	Hunter	Illawarra	South East	TOTAL
Inner	793	14	210	13	35	116		32	1213
Northern	79	442	36	23	7	401		4	922
Western	94	23	1824	33	27	81		18	2100
Southern	399	6	63	238	13	63		9	791
Central West	6	..	3	2	377	24		5	417
Hunter	13	3	7	4	4	1137		3	1171
Illawarra	36	2	32	82	6	41	14	100	313
New England	8	1	2	2	4	127		1	145
North Coast	6	2	2	3	1	139			153
Orana & Far West	4	1	5	2	208	21		2	243
Riverina	2	..	1	2	5	14		60	84
Murray	2	..	..	1	2	11		55	71
South Eastern	3	1	1	2	4	24		274	306
O/S Other States	10	1	9	1	12	41		93	167
Total in residence 30.6.76.	1455	496	2195	408	705	2240	14	656	8169

TABLE A.25 ESTIMATED NET INTER REGIONAL PATIENT FLOWS SCHEDULE 5 PATIENTS : 1976

LOCATION OF INSTITUTION.

Patient Origin.	Inner	Northern	Western	Southern	Central West	Hunter	South Eastern	Illawarra	TOTAL
Inner	-	-	116	-	29	103	29	-	277
Northern	65	-	13	17	7	398	3	-	503
Western	-	-	-	30	24	74	17	-	145
Southern	386	-	-	-	11	59	7	-	463
Central West	-	-	-	-	-	20	1	-	21
Hunter	-	-	-	-	-	-	-	-	-
Illawarra	36	2	32	82	6	41	100	-	299
New England	8	1	2	2	4	127	1	-	145
North Coast	6	2	2	3	1	139	-	-	153
Orana/Far West	4	1	5	2	208	21	2	-	243
Riverina	2	-	1	2	5	14	60	-	84
Murray	2	-	-	1	2	11	55	-	71
South Eastern	-	-	-	-	-	21	-	-	21
O/S Other States	10	1	9	1	12	41	93	-	167
Total	519	7	180	140	309	1069	368	-	2592

TABLE A.26 ESTIMATED NET CASH TRANSFER $'000 FOR INTER REGIONAL SCHEDULE 5 PATIENT FLOWS.

	LOCATION OF INSTITUTION								
REGION	Inner	Northern	Western	Southern	Central West	Hunter	South Eastern	Illawarra	Total
Inner	-	-	1381	-	345	1227	345	-	3298
Northern	774	-	155	202	83	4739	36	-	5989
Western	-	-	-	357	286	881	202	-	1726
Southern	4596	-	-	-	131	703	83	-	5513
Central West	-	-	-	-	-	238	12	-	250
Hunter	-	-	-	-	-	-	-	-	-
Illawarra	429	24	381	976	71	488	1191	-	3560
New England	95	12	24	24	48	1512	12	-	1727
North Coast	71	24	24	36	12	1655	-	-	1822
Orana/Far West	48	12	60	24	2477	250	24		2895
Riverina	24	-	12	24	60	167	714	-	1001
Murray	24	-	-	12	24	131	655	-	846
South Eastern	-	-	-	-	-	250	-	-	250
Sub Total	6061	72	2037	1655	3537	12241	3274	-	28877
O/S Other States	119	12	107	12	143	488	1107	-	1988
Total	6180	84	2144	1667	3680	12729	4381	-	30865

Note: Total in residence 30.6.76 (exclude Prison Med Services) = 8137
Total 75/76 Schedule 5 Maintenance Expenditure $97780000
Average cost per patient year $11908 ($32.63 per day)
Above table is derived by multiplying table 3.35 by $11908.

TABLE A.27 PER CENT OF TIME SPENT BY INTERNS, R.M.O's & REGISTRARS IN EDUCATION ACTIVITIES.

REGIONS	All Interns, R.M.O.'s Registrars	1st year graduates	2nd year graduates	3rd year graduates	Medical Term	Surgical Term	Casualty Term
Attending lectures and seminars for purely learning purposes Receiving purely educational information Doing personal study Observing operations and procedures	4.0	3.0	2.5	7.0	4.5	4.5	1.0
Providing minor assistance in operations	3.5	5.0	2.5	3.0	0.5	7.0	0.0
Carrying our procedures and operations under supervision	0.5	0.5	0.5	1.0	0.5	1.5	0.0
Discussing treatment of patient with senior staff	5.0	4.5	5.5	5.0	6.5	4.5	5.0

Source: Study undertaken by Community Systems Foundation for the Health Commission.

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